Railway Age Gazette

SECOND HALF OF 1916—No. 4 SIXTY-FIRST YEAR

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Railway Age Gazette

Volume 61 July 28, 1916 No. 4

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*Illustrated.

The Interstate Commerce Commission has now set November 13, 1916, for a hearing before the commission at Washington on the question of changing the fiscal year from June 30 to December 31. This question has been up between the commission and the Association of American Railway Accounting officers for a long time, and on April 6, 1916, R. A. White, president of the association, wrote the chairman of the commission, pointing out that the principal objection that the few who were opposed to the change of the fiscal year had raised was due to the fear that comparisons would be disturbed. President White said, however, that the change in the fiscal year would not disturb comparisons to any serious extent if the commission were to require one report covering the twelve months ending June 30 and one report covering the twelve months ending December 31. As President White added, "In this way the comparisons on the June 30 basis would be maintained through the first year of the change and also there would be established a new basis for comparison thereafter for the twelve months ending December 31." In fixing a date as far away as November for a public hearing, which implies presumably a very considerable period after this date before any action will be taken by the commission, it might appear that the commission was somewhat overcautious, but the actual fixing of a date is a step in the progress toward this very desirable reform. If, after the hearing in November, prompt action is taken an order can be issued effective December 31, requiring a report for the 1916 calendar year; the 1917 fiscal year will be continued to June 30, 1917, and a report for that year made and in this way there will be no disturbance of comparisons, although some duplication of work.

Hearing on Change in Fiscal Year

At West Peabody, Mass., on the fifteenth of June a passenger train was derailed by running into an automobile truck on a highway crossing, and the driver of the truck, an employee of the Woburn Machine Company, was fatally injured. In the *Railway Age Gazette* of February 25, two similar accidents were reported, one in New Jersey and one in Ohio, killing four persons, altogether. The Long Island Railroad, whose officers study the automobile peril from every angle, has records of derailments from this cause in all parts of the United States. These facts are noted here simply as a reminder of the broad aspect of this question. Unlike the trespasser evil, this is a many-sided matter. The railroad officer cannot leave everything to the state and municipal authorities—who, usually, are so incurably apathetic—for he may have a carload of passengers overturned any day. In the case of such a smash-up the railroad might be ever so free from blame yet, in accordance with custom, the cash settlements for deaths and injuries of passengers would be made, no doubt, on about the same basis as if the trainmen had been grossly negligent. With the situation as it is, the railroad manager is called upon to be not only a strict disciplinarian with his own men, but also to provide police and detective service, to prosecute law breakers in the courts and to run a first-class press bureau. General Manager J. A. McCrea of the Long Island has set a notable example in these matters, and his company has done an important public duty in providing the large sums of money necessary to carry out this public-spirited policy. The New York, New Haven & Hartford, whose general manager is on the new American Railway Association grade-crossings committee, is doing useful publicity work in Massachusetts. Mr. McCrea says that there is no apparent decrease in recklessness at crossings. Supplementing his statistics for 1915, heretofore published, he reports for 1916, to June 15, on his railroad, 92 cases of reckless driving; 2 persons killed and 12 injured; gates run through 49 times; 27 persons arrested.

The Automobile Peril

When Fairfax Harrison sets forth the ideal qualifications of a local freight agent—"in addition to having the qualities which make for success in the management of a general merchandise store he must usually be a telegraph operator, a rough-and-ready lawyer, a first-aid surgeon, a substitute for a certified public accountant, a pretty good bank president, a political economist, a peacemaker, a captain of men in action, and an organizer of victory"—he sets a standard of versatility with which the prestige of the position by no means keeps pace. Yet the lack of any of these quali-

The Ideal Local Freight Agent

fications will, in some way or other, at some time or other, be reflected in the prestige or the business of the railway by which he is employed. They represent the scintillations of the star to which the agent must hitch his little wagon if he would do his utmost to pull the business of his company to that lofty altitude. It is probably a fact, however, that the possession of such qualities does not meet with anything like full recognition of their value except occasionally at highly competitive points. But, as Mr. Harrison also says in the address which appears elsewhere, "in reality there is no such thing as a non-competitive railroad station." A disgruntled shipper may have to start business at an apparently non-competitive station, but may turn it over to another line at the first junction point and short-haul the local line. The matter of competition is then to be fought out at rifle range instead of hand to hand. The combatants do not change positions. In either case the local agent's influence operates upon every pound of business the railroad handles. His more obvious duties may be confined to co-operation with the shipper and securing the shipper's intelligent co-operation with him, in the proper packing, marking and loading of his goods; but they are not confined to this. He is the local representative of the company by which he is employed. In this go-between relation he needs something of each of the qualifications which, in a highly specialized organization, is represented in its completeness in each of the heads of many departments. And because "he probably comes into contact with as much meanness and dishonesty as any man in business," he needs, in addition, as Mr. Harrison so felicitously puts it, "a patience and good humor which will qualify him for a robe and a harp and a seat in heaven alongside of Job himself." As a practical matter, however, it is perhaps well once in a while to call attention to the commercial value of these qualifications while the occasional possessor of them is still represented on earth.

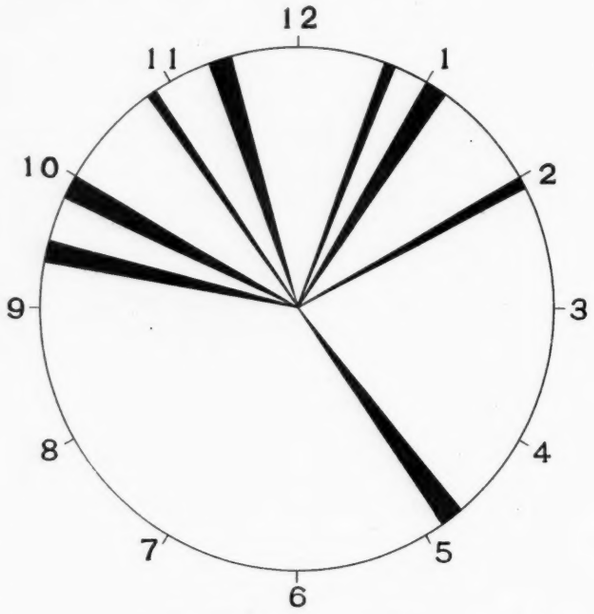
HOW MANY HOURS DOES A TRAINMAN WORK A DAY?

ASSUME that the enginemen and trainmen were actually attempting to get an eight-hour day and not an increase in wages by the threatened strike of the four brotherhoods. Would they even then have any justification for their demands? Eight hours of good hard work, even though split into two periods with a certain length of time off for a midday meal, may be as much work as a man ought to be asked to do in 24 hours if he is a highly skilled mechanic. It is not nearly as much work as the farmer, small tradesman, station agent or the division superintendent does. However, for sake of argument allow that the demand of a skilled laborer for only eight hours' work in each 24 is reasonable. Do the trainmen now work more than eight hours? As a matter of fact, except in exceptional cases, they do not. The accompanying diagram shows the actual hours of work of a head brakeman.

This man reported for duty at 9 a. m. From 9:20 to 9:30 he took out the engine and coupled it to the train; from 9:50 to 10 he got the train ready, from 10:50 to 10:55, cut off the engine and took water at A; 11:20 to 11:30, helped set off cars at B; 12:40 to 12:45, coupled and uncoupled engine and took water at C; 1 to 1:10, set off cars at D; 2 to 2:06, coupled and uncoupled engine and took water at E; 4:40 to 4:50, cut off the engine at the terminal. This was the sum total of his day's labor. This is not a picked case, but a typical case. The man actually worked an hour and five minutes, was on duty seven hours and fifty minutes, and was paid for ten hours.

The printing trade in large cities like New York and Chicago is entirely under the domination of the unions. It admittedly employs well paid skilled labor. The eight-hour day, with time and a half pay for overtime, is compulsory. The linotype machine man, however, who goes to work at 8:30 finds copy at his machine and is actually at work in 99 cases out of 100 before 8:35. It is safe to say that in 99 cases out of 100 and in 99 days out of 100 working days the linotype machine man is not interrupted in his continuous work for a total of 20 minutes from the time he begins work at 8:30 until he quits for lunch at 12:30. The same is true in the afternoon. In his eight-hour day, therefore, he is working at least seven hours and twenty minutes. The same is true of the compositor. In the steel trade the skilled laborer is actually at work more than 80 per cent of the time that he is on duty. The same is true in the factory. There is a steady grind which may possibly be a justification for a limitation of hours.

There is no such corresponding grind in the work of trainmen. The trainman's job is far more analogous in this respect to that of a traveling salesman than to that of a printer or a steel worker. The traveling salesman may not be actually engaged in selling a customer more than four or five hours out of each 24 hours, but unlike the trainman is on duty often 12 or 14 hours and in a sense is on duty the whole 24 hours each day that he is on the road. To take another example, how much justice would there be in sailors asking for an eight-hour day and pay at the rate of time and a half for all the remainder of the time that they were on shipboard, exclusive of their watch below? As a matter of fact even in their watch below they are subject to call at any time.



A Head Brakeman's Day

Black represents time actually at work.
Reported for duty, 9 A. M.
Cut off engine at terminal, 4:50 P. M.
Labor, 1 h. 5 min.
On duty, 7 h. 50 min.
Paid for 10 h.
Ran 90 miles.
Paid for 100 miles.

The fact of the matter is that a trainman would not be working eight hours a day if he were on duty sixteen. In other words, even if the trainmen were asking for an eight-hour day, which they are not, there would be no justification for such a demand.

LOCOMOTIVE REPAIR FACILITIES

THE operating department is the one most directly affected by the length of time which locomotives are held out of service undergoing repairs. When traffic is heavy and yards are congested this department requires every pound of tractive effort which can be made available. It is its business to get the freight over the road and it is ofttimes difficult for operating officers, who are not in general thoroughly familiar with mechanical department problems, to understand why locomotives sometimes have to be held out of service for what seems to them unnecessarily long periods. But locomotives have to be repaired if they are to be kept in condition to move traffic and avoid failures. It may have been possible at one time in the history of American railroading to neglect necessary repairs and still keep locomotives in service even though the results obtained were far from economical, but whatever conditions may have obtained in the past, it is certain that the present-day exacting requirements of heavy trains and prompt delivery of freight place upon motive power officers a greatly increased responsibility in order to keep the locomotives in the proper condition. Even if American motive power officers of the present day were prone to neglect some of the necessary repair work in order to get the engines back into service a little more promptly, there is government inspection and supervision to prevent any such neglect.

What is causing the extra long delay in many cases is not, as some operating officers seem to think, the desire of the motive power department to hang on to locomotives as long as they can when once they get them in their hands, but an absence of those shop facilities which are necessary if the large locomotives of the present day are to be given needed repairs in the shortest possible time. Railway presidents and vice-presidents have got to be brought to realize that Mallet, Mikado and 2-10-2 type locomotives cannot be repaired in the same time and with the same tools that were used in repairing Eight-wheel and Mogul type locomotives 15 or 20 years ago.

It is the higher executive officers who realize most fully the advantages to be obtained by increasing the average train load. It is they who are responsible mainly for the proportions of the present-day locomotive and it is unfair to the motive power department to place such locomotives in its hands for repairs and expect it to make the repairs and keep the engines in service the maximum possible time with shop and enginehouse equipment that is 20 years out of date. Modern locomotives demand modern shop equipment for their maintenance.

Nor is it a satisfactory way out of the trouble to place new machine tool equipment in the main repair shops and pass on some of the old shop equipment for use in enginehouses. The enginehouse is the repair point that can produce the greatest possible results toward keeping locomotives out of the back shop and on the road and it requires just as efficient and up-to-date machinery as does the back shop. The executive officer who purchases large locomotives in order to increase his train loads is not getting all that he can out of those locomotives unless his shop and enginehouse facilities are thoroughly capable of providing for their maintenance.

Five, six or seven hours additional spent in the enginehouse or two or three working days extra in the main repair shop because of out-of-date repair facilities means just that much longer that the locomotive is out of the hands of the operating department and, therefore, out of revenue service, and the officer who neglects to provide an appropriation for shop and terminal facilities commensurate with the size and power of his locomotives by so doing is standing in his own light.

EARNINGS OF TRAIN EMPLOYEES

THE National Conference Committee of the Railways, having charge of the negotiations with the train employees, is having published in newspapers throughout the country an advertisement showing the annual earnings of trainmen and enginemen in eastern, western and southern territory for the year 1915. These figures, which were given in last week's issue of the *Railway Age Gazette,* page 121, represent the results of the most comprehensive and accurate study of railway wages ever made.

A very elaborate compilation of the earnings of engineers and firemen on the western roads was made for the 1914 arbitration proceedings, but the only statistics for all four classes of train service employees for the entire country have been those obtained from the Interstate Commerce Commission reports, which, while approximately correct, have been criticised because they were arrived at by using the number of employees in service at the close of the fiscal year. The average figures obtainable from the Interstate Commerce Commission statistics, moreover, gave no indication of the differences in the earnings of the men employed in passenger, freight and yard service. The 1915 figures compiled by the conference committee give the earnings in the three classes of service separately, and therefore show for the first time the pay of the employees in freight and yard service who are now demanding an increase.

While representatives of the employees have been loud in their complaints about the wage statistics published heretofore by the railways, they have used for their own purposes either specific examples of the lowest paid men they could find or have cited the rates of pay per 100 miles, which are merely the minimum rates per day. The figures now published by the railways include the earnings of all of the men working exclusively in their respective classes of service who appear on the January and December payrolls, and give not only the highest and the lowest, but the average earnings. Firemen, for example, who worked part of the time as engineers, and therefore earned more than if they had worked all of the time at firing, are not included, but many of the employees who worked only part of the year are included, thus bringing the average considerably below the average earnings of men who worked all of the year. For this reason separate tables are published, showing the earnings of 75 per cent of the employees, excluding the extra men and those who laid off a large part of the year.

These show that, in spite of the objections they have made to the figures that have previously been published, the freight and yard employees now voting to strike unless they are given a $100,000,000 wage increase are highly paid men. While in most cases the passenger men receive more than either the freight or yard employees, on the western roads the freight conductors average $1,935 per year, as compared with $1,878 for passenger conductors, and both the freight and yard brakemen receive more than those in passenger service, $1,135 and $1,107, respectively, as compared with $967 for the passenger brakemen.

In most cases the employees of the western roads are shown to enjoy higher earnings than those of the eastern or southern roads, the engineers averaging $2,195 in passenger service, $2,071 in freight service and $1,378 in yard service; conductors, $1,878 in passenger service, $1,935 in freight service and $1,355 in yard service; firemen, $1,317 in passenger service, $1,181 in freight service and $973 in yard service; and brakemen $967 in passenger service, $1,135 in freight and $1,107 in yard service.

The pay of the passenger conductors and firemen, all four classes of freight employees and yard conductors and brakemen, is highest on the western roads; passenger and yard engineers on the southern roads are paid more than those on

the eastern or western lines, and passenger brakemen are paid the most on the eastern lines. On the southern roads the earnings of the engineers, the passenger conductors and the passenger firemen exceed those of the same classes of employees on the eastern lines, while the earnings of the other classes of employees included are less than those on the eastern roads.

The highest pay shown is that of a passenger engineer on a southern road, with $3,983 for the year, and the lowest is that of a yard fireman on a southern road with $406. Among those earning over $3,000 a year are passenger engineers in the east, west and south, passenger conductors in the east and freight engineers in the south and west. Averages over $2,000 a year are shown for passenger engineers in the south and west and freight engineers in the west, and averages over $1,500 are shown for passenger and freight engineers and conductors in all three territories and for yard engineers in the south.

Most of the people of the United States that read these figures based on the actual payrolls and compare them with their own earnings will find it rather difficult to sympathize with the recipients of such wages in case of a strike to enforce still higher pay. They may, however, find in these figures part of the reason why the brotherhoods of train employees may prefer to try to settle their controversy by force rather than by arbitration.

NEW BOOKS

Commercial Mortmain. By John R. Dos Passos. Published by the Bench & Bar Company, New York. Price, $1.25.

The name of this little book of 101 pages is derived from the comparison which the author draws between the attempt of the monarchy of England during the twelfth to sixteenth centuries to prevent the permanent acquisition of lands by the religious houses and the attempt of the American government to prevent industrial combination by corporations. Mr. Dos Passos likens the federal anti-trust law to the English laws which attempted to prevent land falling under mortmain. Religious houses for 400 years successfully evaded the laws passed to keep them from acquiring lands. Mr. Dos Passos thinks that after a trial of 25 years the anti-trust act must be pronounced a failure. The greater part of the book is given up to complaint against the power which wealth concentrated in the hands of a few men can have through control of corporations; an explanation of why these evils cannot be overcome through such a law as the anti-trust law, and a discussion of overcapitalization and limitation of capitalization. As to overcapitalization, the author sees clearly that each case must be considered on its own merits. As he points out, in the case of railroads much of the complaint as to overcapitalization is wholly unfounded. The inducements which had to be held out to get capital into the hazardous venture of building a railroad to develop new country are part of the actual costs of building the railroads. In other words, the cost of money is as much a part of the cost of a railroad as is the cost of ties and rails. Neither does the author think that it is possible to prevent overcapitalization by laws limiting capitalization. The remedy which he suggests is to tax corporate profits and to limit individual incomes through a graded income tax. He thinks that the federal government should have full power, and that what he considers the evils of trusts and corporations cannot be overcome by the states working through state statutes. He suggests that there is a series of crime at common law which is known as "offenses against public trade" in which were embraced monopolies and all kindred acts. He believes that: "Congress should readopt the common law—making all acts against public trade punishable criminally and civilly."

Letters to the Editor

MORSE OPERATORS

Haileyville, Okla.

To the Editor of the Railway Age Gazette:

Your note of November 5, page 843, concerning Morse operators, and mentioning the two who took prizes at the San Francisco exposition was, no doubt, of interest to many readers.

There is no doubt that for sometime there will be a demand for *first class* Morse operators; but for the ordinary every-day O. S. operator there cannot be much demand. On the division where the writer is employed there are twenty per cent fewer operators now than five years ago; and it is not the telephone that has displaced them. The reduction has been made because the track and equipment have been improved in that time and the despatchers are for that reason able to handle the trains better. This is true on other divisions and on other lines.

There is no getting away from the fact that the telephone is creeping in on the field of message business; and its capacity for speed and accuracy is its advance agent for further development along that line. There is no telegraph operator, unless he uses the Phillips code, or some other abbreviation scheme, who can send Morse as fast as a competent man on a typewriter can put it down; while, on the other hand, the expert typist is able to copy from the man talking on the phone at a reasonable rate of speech. This is good evidence, substantially conclusive, that the telephone is bound to relieve the telegraph and soon be universal, at least for moderate distances. The use of the telephone will decrease the cost of maintenance for wires, poles and battery, because there will not be so many telephone wires required to handle the same amount of business as there would be with the telegraph.

The argument that the telegraph will still have to be used in connection with the telephone in case the latter fails is of little account. A telephone failure can be repaired just as quickly as a telegraph failure. What did we do in years gone by when the telegraph wire went down? Only waited until it came up. So it will be with the telephone; but the wait will not be so long because linemen are now supplied with motor cars to carry them to points where there is trouble and trains are more frequent.

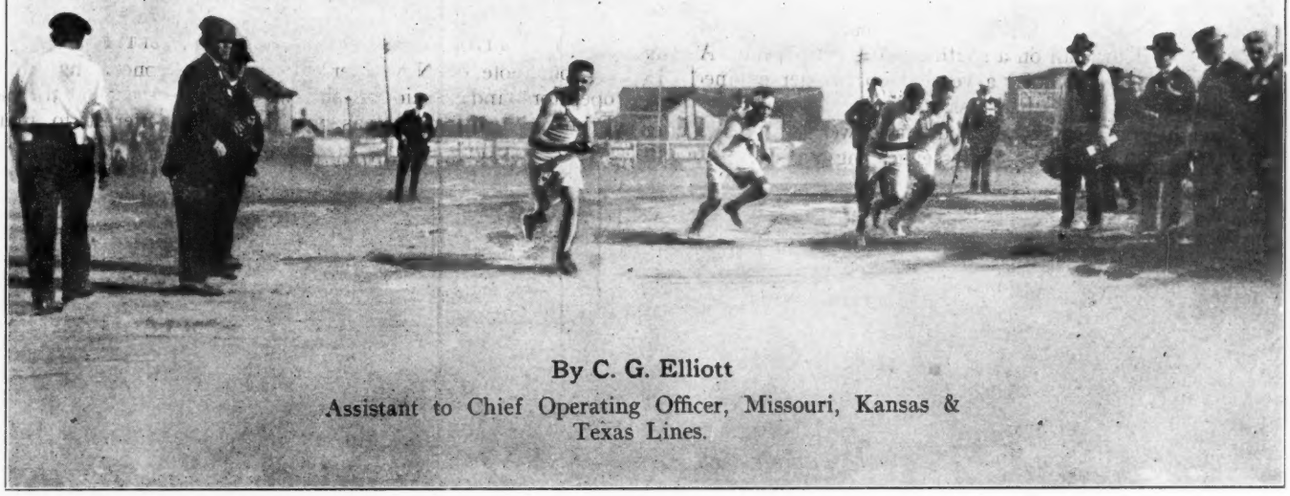
Again, with the increase of the telephone there will be a great deal of business transacted by word of mouth, of which no record will be made. On the division where the writer is employed and where the telephone is used for despatching trains, lots of communications are only conversations—such as ordering trains, tracing cars, distributing cars, maintenance of way work, and many other things. All of these were formerly handled by the telegraph but to wait for matters of this kind to take that slow course now would be intolerable; although seemingly there is an adequate telegraph force to do it. This works a hardship on the despatcher at times, but it seems that the service demands it; and if it proves beneficial, all well and good.

This state of affairs is bound to decrease the demand for operators. Some operators seem to be doing what they can to hasten their own downfall. They seem to think that, if anything is wanted in a hurry, it will be taken care of on the phone, and so they do not give the message part of the business the prompt care that it used to get.

All these things are helping the telephone along and decreasing the number of Morse operators. J. L. C.

How a Great Corporation Got 5000 to Play*

A Remarkably Successful System Field Meet Was Held at Denison, Tex., with the Help of the Railroad Y. M. C. A.



By C. G. Elliott

Assistant to Chief Operating Officer, Missouri, Kansas & Texas Lines.

The Finish of the Potato Race

AN *esprit de corps* is as essential to the successful operation of a railroad as of an army. That loyalty and efficiency, the two outstanding components of such a spirit, are best developed within healthful and congenial environment will not be questioned. I have been requested to tell you something of a movement yet in its infancy on the Missouri, Kansas & Texas Lines, which we believe, in affording means for physical and social development, is in turn resulting in a more efficient transportation organization.

The necessity for rigid economy in railroad operation is an ever-present one today, and I desire at the outset to disclaim for the management of the M. K. & T., credit for purely philanthropic motives in its encouragement of the activities of which I shall speak. It has happily been found possible to carry them on at surprisingly little cost to either the company or to the employes, and without interference with operation.

At Parsons, Kan., where locomotive shops and certain of the general offices are located, there are approximately 2,800 Katy employes. About two years ago, Secretary Howser, of the railroad and city Young Men's Christian Association at that point, conceived the idea of and organized among the local employes a Katy Athletic Association. Last summer a suggestion by A. G. Knebel, of the Railroad Department of the International Committee of the Y. M. C. A. that the Parsons movement be extended, meeting with the hearty approval of the management, a conference of Young Men's Christian Association and railroad representatives was held at St. Louis, July 23, at which the organization of the Katy Lines Athletic Association was determined upon, the stated object being the promotion of a spirit of good-fellowship and an interest in clean athletics. Membership is restricted to employes and dependent members of their families. Dues are nominal, having been but 25 cents for each employe member during this first year.

Supervision rests with a general committee of 22, composed of Y. M. C. A. secretaries and employees and officials of practically every department of the railroad. At the first meeting of this committee, which was held at Parsons, October 1, 1915, we were extremely fortunate in having with us W. H. Ball, of the physical department of the International Committee of the Y. M. C. A., who subsequently made a trip over the line, presenting clearly the real purpose of the movement, and whose advice and suggestions were invaluable in getting it under headway. It was made clear from the outset that there was no obligation upon the part of any employee to become identified with the association, although all were invited to do so. Paternalism has been studiously avoided, and the future of the movement rests primarily with the employees themselves.

There are at present 15 local associations with headquarters at various points from St. Louis, Mo., and Kansas City on the east and north to Smithville, Tex., and Houston on the south. The territorial jurisdiction of each association is defined, and its local activities are supervised by a local committee. Every portion of the line, including outlying agencies, track gangs, etc., has a definite local affiliation. The local committees, and particularly their chairmen, are selected with especial reference to their standing and influence among employees. The chairman at one point is a conductor, at another a locomotive engineer, while a bridge and building foreman, an upholsterer foreman, agents, superintendent's chief clerks, a division passenger agent and a general baggage agent are heads of the other local committees.

Field and Track Meet at Denison

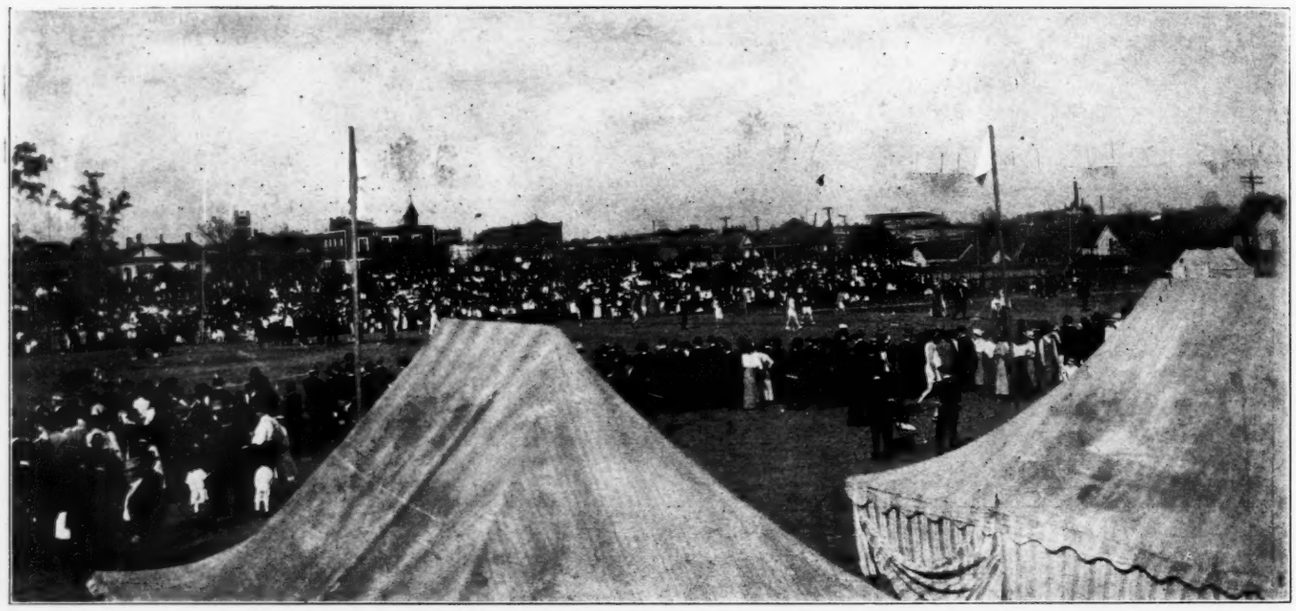
It having been decided to hold the first system field and track meet at Denison, Tex., November 6, a program of events was announced for which contestants began training after working hours. Everyone, regardless of whether or not he had ever before participated in athletics, and regardless of lack of proficiency, was encouraged to not only try out in the various events, but to keep on trying. We have little or no aspiration to establish new athletic records, but do definitely desire to improve the physical, and consequently the mental condition of the man or boy who is employed at a

*An address, made at a week-end conference on "New Ideals in Industrial Betterment," held at Lake Geneva, Wis., June 30-July 2, 1916. The gathering was composed of industrial leaders, railroad officers and Y. M. C. A. specialists.

desk every day, or who has no regular diversion from constant manual labor of a routine nature.

It was estimated that between 1,500 and 2,000 took some part or other in preparation and in the eliminations for the system meet. That cigarettes and irregular hours were not conducive to wind and stamina was soon discovered, and they were cut out. Even coffee was "tabooed" by many as time for the meet drew near. Fellows in obscure positions, and of whom none outside of their immediate small circle of acquaintances had ever before heard, sprang into local prominence. Departmental lines were entirely eliminated, and everybody pulled for a strong home team. Ties of friendship were formed, which would probably never have existed but for the opportunity thus afforded. Physical directors of the various local Y. M. C. A.'s co-operated splendidly in the training of contestants at their respective locations, thus insuring a desired influence, for emphasis was constantly being laid upon the fact that only honorable and fair victory could be counted a victory at all.

The system meet at Denison, November 6, was successful beyond expectation. A holiday had been declared in all departments. Seven special trains were run from various points north and south to carry the men, women and children of the Katy family. Train and engine crews voluntarily donated their services. The St. Louis crowd of 350 traveled 1,322 miles, going and returning. The Sedalia, Mo., delegation of 450 traveled 836 miles. Nearly 1,000 Parsons rooters rode 550 miles. Dallas was there 700 strong with its employees' band of 30 pieces, organized less than a month previously as an adjunct to the association, and consisting of six experienced players and 24 lads with new instruments, sore lips and a determination to do their worst



View of Athletic Park from Headquarters Tents

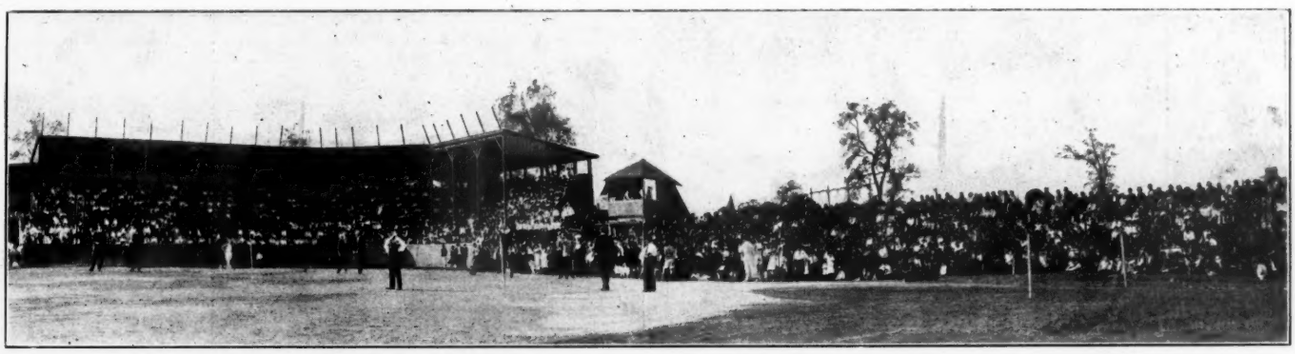
Welcome Arch at Denison Union Depot

—which they did. Walnut Springs (Tex.) came with its employees' band. Every part of the line was represented. All officials who could possibly be there were present.

The day was conceded to be the greatest in the history of Denison. The town, which has a population of about 20,000, had made elaborate preparation to entertain the visitors and was in gala attire. Apparently the entire citizenship assumed the responsibility of host. The Denison Herald, the leading daily, issued a "Katy Special" edition. Every automobile in the city was at the service of the visitors. A barbecue dinner was served to 3,800 without cost. The "Twenty-one Club" of society ladies personally served a delicious luncheon to the contestants, and there were numerous other delightful entertainment features which I shall not enumerate, but which added immeasurably to the pleasure of the occasion.

Mr. Ball served as referee, and the success of the meet from an athletic standpoint was due more to his unflagging efforts and excellent handling than to any other one factor. Among the assisting officials were physical directors of city Y. M. C. A.'s along the line, of whose splendid services previous mention has been made. There were 437 contestants, including employees and officials, entered in the various events, which included track and field athletics, baseball, tennis, tug-of-war, quoits, and wound up with a football game between Denison and Smithville. The attendance was estimated at 10,000. It was a happy care-free crowd, and not an unpleasant feature marred the day. Old-timers of 40 or more years service with the company in Missouri and Kansas shook hands for the first time and swapped experiences with the long-service men of Texas, while their wives visited and children played together. Everybody rooted for the boys from home and cheered the winners.

The C. E. Schaff trophy, offered by our president to the team winning the greatest number of points, was won by Denison. Gold, silver and bronze medals for the first, sec-



The Grandstands Were Packed Tight

General Committee in Charge of Track and Field Meet

ond and third men in each event were the only individual prizes awarded. The offering or acceptance of cash prizes is prohibited.

Some of the Results

Since the meet, the conditions varying at different points, local associations have been managing their own affairs as circumstances have warranted. Absence of indoor equipment has necessarily restricted athletic activities to those which can be carried on out of doors. At several points entertainments and parties have been held. The Dallas band, which is now doing really creditable work for so young an organization, is giving concerts which are attended by employees of all departments and their families, and are most enjoyable. Bands have been organized at Parsons and Denison and an orchestra at Sedalia. The Houston Association has given indoor athletic programs, and is a contender in the City Indoor Baseball League. Basketball is being played at various points. Trap and rifle shooting is arousing general interest, and the organization of military drill squads is under headway.

Our young ladies have been particularly active and helpful in the local entertainment features. A moving picture of the Denison meet has been exhibited at local points and viewed not only by Katy folks, but by the outside public as well. Association affairs are given liberal space in the Employes' Magazine and in our local newspapers.

Tents Used for Dressing Purposes and Headquarters

One direct result of the splendid co-operation extended by the City Young Men's Christian Association secretaries and physical directors has been an increase in the number of M. K. & T. members of the city associations at points where there are no railroad associations. At Dallas, for example, 200 of our boys have gone into the Y. M. C. A. At Houston, where we employ comparatively few men, more than 25 have joined. At Fort Worth a movement is on foot for the establishment of a railroad branch, and Parsons recently raised $25,000 with which to enlarge the present building and equip a gymnasium and swimming pool.

Thirty-five baseball teams have been organized and are now playing. Sixteen of these teams started April 29 in a race for the W. A. Webb cup. To reduce the distance to be traveled to and from the points of games these teams are divided into four groups, or leagues of four teams each. The championship deciding game is to be played at Parsons, October 7, as the final event of this year's system meet. A nominal admission fee is being charged at ball games to defray actual expenses. The other 19 teams are playing in city or local leagues.

It is the custom on several of the superintendents' districts to hold a picnic each summer. These are in charge of committees of employees, and are simply old-fashioned "get-together and get-acquainted" affairs with the proverbial fried chicken, deviled eggs, potato chips, dill pickles, "chiggers" and other trimmings. They are extremely popular with both employees and officials and deservedly so, as the spirit of comradeship and friendliness they engender is invaluable.

The Barbecue Tent

Athletic events of some sort have usually been a feature of these picnics. This year eliminations for the system meet are constituting a definite part of their programs.

A permanent athletic field is being prepared at Parsons, where it is planned to hold this year's system meet on ground belonging to the railroad, conveniently located for both shop and office employees. Athletic fields have also been, or are being, equipped on a smaller scale at other local points on railroad ground where available, and where not on ground leased by the local associations. The expense of equipping these fields has thus far been very small, the actual labor having been performed largely by association members.

Listening to an Address on the Value of Athletics; Sedalia, Mo.

There are approximately 20,000 M. K. & T. employees.

An organization of this sort with a possible active membership of many thousands scattered over nearly 4,000 miles of railroad necessarily requires careful supervision and involves some risk of objectionable features. Thus far, however, our troubles of this character have been particularly nil.

Keen rivalry naturally exists between the various local associations, but anything bordering on professionalism is forbidden. Eligibility rules are clearly defined, and under no circumstances is a man employed on account of his athletic prowess. To illustrate, no one is permitted to play in scheduled baseball games this year who has played, or has been under contract to play, professional baseball since December 31, 1915, nor can a man play in a scheduled game prior to his having been in the service 30 days. A slogan of the ball teams is "Let Every One Won Be Fairly Won." "Get-Rich-Quick-Wallingford" tactics in business life are not infrequently traceable to crooked baseball in youth.

Loss of working time incident to participation in association activities is discouraged, and pay is not allowed for time so lost. Baseball and other schedules are arranged with a view to minimum conflict with the regular working hours of participants.

The movement is too young to warrant a prediction as to its ultimate development. Its promotion, simply to determine who can run the fastest, jump the highest, or put the shot the furthest would be of little, if any, permanent value, and I have endeavored to make it plain that these considerations are of secondary, if not entirely negligible, importance.

There is an intimate relationship between work and play, which we are endeavoring to maintain in its proper balance. The spirit that influences men to keep fit to do their best in play is usually accompanied by the spirit that will help them to do their best in work, and the developing of this spirit is the furthering of efficiency in service.

A transportation system is but an organization of men working unitedly to perform a public service. Constant emphasis is laid on the necessity for team work in our traffic solicitation, in the better handling of freight to prevent claims, in the Safety First movement—in fact, in connection with every feature of our operation. We believe that the true spirit of team work, not only in play, but in the serious side of our business lives as well, can be, and is being, promoted as a result of the activities of which I have made mention.

I have yet to hear the first word of adverse criticism of the movement. A typical expression was that of one of our system traffic officials, who recently remarked that, if the association accomplished nothing but the improvement he had observed in the physical condition of one of his sons, in his opinion, it had been well worth while.

It is to the Young Men's Christian Association, which is recognized as an invaluable adjunct to M. K. & T. operation that we are indebted, not only for the suggestion of the movement, but very largely for what has been accomplished. As I think of the mork to which you gentlemen are devoting your lives, these lines come to mind:

Isn't it strange that princes and kings
And clowns that caper in sawdust rings,
And common people, like you and me—
Are workers for eternity?

Each is given a set of tools,
A shapeless mass and a book of rules,
And each must make, ere life be flown,
A stumbling block, or a stepping stone.

DINING CARS IN INDIA WITHDRAWN.—The East Indian Railway has withdrawn its dining cars from the Punjab and Bombay mail services and is allowing time at the stations for meals.

THE PENSION SYSTEM AND A STRIKE

The Southern Pacific Bulletin publishes the following as a warning to the train employees now being called upon to vote for a strike:

"Let us take counsel together.

"Do you know that the pension system is in danger? It was devised for the purpose of enabling employees of the company who have rendered long and faithful service to retire when they have reached an age requiring relief from duty. One of the pension rules is that those who leave the service lose any further claim to pension.

"The aim of the pension plan is to show in a practical and grateful way the appreciation of the company for those employees who have given the best years of their life so well to the company. The reward is for the fulfillment of faithful and continuous duty. Its essence is long and unbroken service. The employee who quits his job, of his own accord, gives up his right to expect such reward.

"At this time we would fail in a friendly duty to the men and women in the service if we forgot to remind them of dangers they can escape.

"You cannot quit the service and maintain your pension rights. You cannot abandon your work, leaving the company, the train service and the public to their fate, and be faithful to the company or anything connected with it at the same time.

"Enginemen, trainmen and switchmen have demanded changed schedules and increased wages. The railway managers have been compelled to decline the demands, but have offered to arbitrate all the points at issue embraced within their demands. Notwithstanding this, the representatives of the organizations are taking a strike vote. The strike is suggested although the men know that this company is not responsible for the agitation and it has no desire to change existing rates of pay or working conditions to the disadvantage of the employees. This has not prevented the company from offering to arbitrate, because of its desire to maintain harmonious and friendly relations with its employees. That desire the company has always.

"On the other hand, when a man strikes he leaves his work. He abandons his company to get along as best it may without him. His act is his own.

"Can any man quit his work of his own will and still be considered as giving continuous service or have future claims upon his employer? Can any man abandon the company and its property and still claim to be rendering the company faithful service? No man can go back upon his trust and be faithful to it at the same time; he cannot be facing both ways. The terms "faithful service" and "continuous service" would become a mockery under such circumstances and a delusion of which it is our purpose in this article to ask all concerned to take heed.

"The question is even more serious than this, for it brings the whole pension plan into question if it proves to be of so little value to the employee. Remember that, too.

"There is no use dodging the facts. The responsibilities of old age are too serious not to be faced openly. The loss of the pension is one of the most heartbreaking results of a strike for the man who walks out. Hasty action leads to regret. It is better to think the matter over, weighing the factors carefully, before making a decision. To strike is to abandon everything—employer, now, and well-earned relief, later, from the cares of the future.

"Let us ask every man and woman who reads this to remember that the pension plan has been a free-will offering from the company to the men and women for whose old age the company has desired to make provision. It costs the company between $300,000 and $400,000 annually. It costs the employees nothing. It brings to their old age comfort; it brings family pride instead of pitiful dependence;

it brings the glow of satisfaction to the family home and hearth; and yet it costs the employee nothing. The only requirement that the company makes is continuous and faithful service. That is the only price. Men and women who depend upon the Southern Pacific for your needs and your comforts, is the price too high? If you are in doubt, ask the men and women of the Veteran Corps."

CRUSHED GRAVEL BALLAST ON THE ROCK ISLAND

The Chicago, Rock Island & Pacific is making considerable use of a crushed and washed gravel for ballasting its tracks, the material being obtained from a commercial pit at Rockdale, near Joliet, Ill. Except for the fact that a considerable portion of the stone is too large for use in track, this gravel would be an excellent natural ballast; at the same time the pit presents physical characteristics which are most favorable for economical operation. The face of the pit is 1¾ miles long and 65 ft. high above a general ground level, which can readily be drained, while there is a considerable deposit of material below this level which affords possibilities of future development by dredging. The content of clay or loam is small and the stripping is so thin that with the use of the washing process no attempt is made to strip. The sand contains only a small amount of the extremely fine particles. The pit is owned and operated by the Chicago Gravel Company and the output is used commercially as well as for railroad ballast.

Aside from the mineralogical character of the stone of which a gravel is composed, the availability of a natural gravel for use as ballast depends principally upon the relative proportions of the various sizes of particles and the content of clay or loam. If the amount of fine sand or foreign matter is high the gravel will give a dusty ballast and one that drains improperly. If, on the other hand, the gravel contains a considerable amount of particles or boulders which will not pass through a 2 or 3-in. screen, it will be troublesome and expensive to handle in the track. The first objection can be overcome by washing the gravel and this has been done in certain pits during the past eight years or more. The other difficulty can be overcome by passing the gravel through a rock crusher and this is now being done, in combination with washing, in the pit serving the Rock Island. The success of either of these remedies depends, of course, upon the economy with which they can be carried out, as affected by the opportunity for the installation of an efficient plant.

The gravel at Rockdale is excavated with a 175-B Bucyrus turn-table steam shovel with a 65-ft. boom and a 3½-cu. yd. dipper. This machine has a capacity of 3,500 cu. yd. in nine hours. The gravel is hauled to the crushers over standard gage tracks in two trains consisting of two Roger ballast cars of 40 cu. yd. capacity each, handled by 40-ton, 4-wheel switch engines. The crushing plant consists of four No. 6 Allis-Chalmers gyratory crushers with a capacity of 300 cu. yd. per hour. Two Symons Brothers disc crushers are provided to recrush all stone which fails to pass through the largest size screen. A grizzly is provided under the hopper over the four primary crushers in order to by-pass as much as possible of the fine material to avoid the possibility of choking up the crushers. The rock is transmitted from the track hopper to the crushers and from the crushers to screens, etc., on heavy conveyor belts.

The screening and washing plant consists of seven steel tanks 19 ft. in diameter and of varying heights, to a maximum of 48 ft. and seven rows of four screens each arranged in two banks by which the material is separated into six different sizes. In one bank the sizes of the mesh in the screens are in order, 2 in., 1¼ in., ⅜ in. and ¼ in., and they separate the stone respectively into what are known as 2-in. stone, 1-in. stone, roofing gravel and torpedo sand. In the other bank the sizes are 2½ in., 1½ in. and ¼ in.

The process of screening is the direct opposite of the usual method in that the material passes over the largest size screen first, all the material retained on the screen being passed directly to a bin while that which passes through the screen is carried to the next smaller screen. Fifteen hundred gallons of water per minute is used for washing, a stream of water being played on each screen. The separation of the clay and loam takes place in a box under the last screen, where a tilting device periodically pours off the water containing the suspended matter and permits the sand to drop into a bin. Bins are provided for each of the sizes enumerated above and there is also one bin for ballast which consists of the run of the pit for the material retained on the 1¼-in., ⅜-in. and ¼-in. screens plus 10 per cent of the torpedo sand. The run of the pit for the three larger sizes consists approximately of one-fourth roofing gravel, one-fourth 1-in. stone and one-half 2-in. stone. Ten per cent of torpedo sand is added because it has been found that this amount of sand facilitates the handling of the ballast in track.

Gravel from this pit was first used on the Rock Island for ballast in 1912, the gravel being crushed to a 2-in. size without washing. This gave a fairly satisfactory ballast, but some tendency toward churning of track was noted and it was finally concluded that it was not entirely suitable for the standard of track desired for the main lines of the Rock Island. As a result, the washing feature was added in 1913 and has been carried on for the three last seasons, according to the arrangement described above. The ballast has been used on the main line of the Illinois division between Chicago and Rock Island, and on the main line of the Missouri division between Rock Island and Eldon, Iowa. During the season of 1915 the average daily output was about 65 cars, about 35 cars of which was used for concrete on track elevation in Chicago, and ordinary commercial purposes, the rest used as ballast.

A general improvement of the tracks is being carried out over the district mentioned above, including a raise out of face and extensive tie and rail renewals. A special effort is made not to mix the new ballast with the old. In general no new ballast is delivered until all the old ballast has been removed to the level of the bottom of the ties, either by raising the tracks or by using it to widen the shoulders. Ordinarily the ballast is unloaded in two portions: first, a sufficient amount for making the lift with skeleton track, and later the amount necessary for dressing to the standard ballast section. The track is raised by shovel tamping and then left for about two weeks, when it is gone over again and all low spots are raised with the use of tamping picks.

This crushed and washed gravel costs approximately two-thirds the average cost of crushed stone ballast available in the same general territory, and with the experience had thus far the results obtained have been entirely satisfactory. It is much easier to handle in track than rock ballast. In fact, it can be worked almost exactly the same as gravel, shovels being used for most of the tamping as mentioned above. Owing to the fact that a considerable portion of the stone has passed through a crusher, a large portion of the particles are angular in shape rather than round, a fact which adds materially to the holding power of the material as a ballast and there is not the tendency to roll which has sometimes been experienced with washed gravel which has not been crushed. The ballast gives a good appearance in track very much like rock ballast and is equally clean and free from dust.

GERMAN STEEL AND IRON.—A recent United States consular report says that the German production of pig iron in 1915 was 11,790,199 metric tons, as compared with 19,300,000 tons in 1913, or 39 per cent less. Steel production in 1915 was 13,187,616 metric tons and 14,946,212 in 1914.

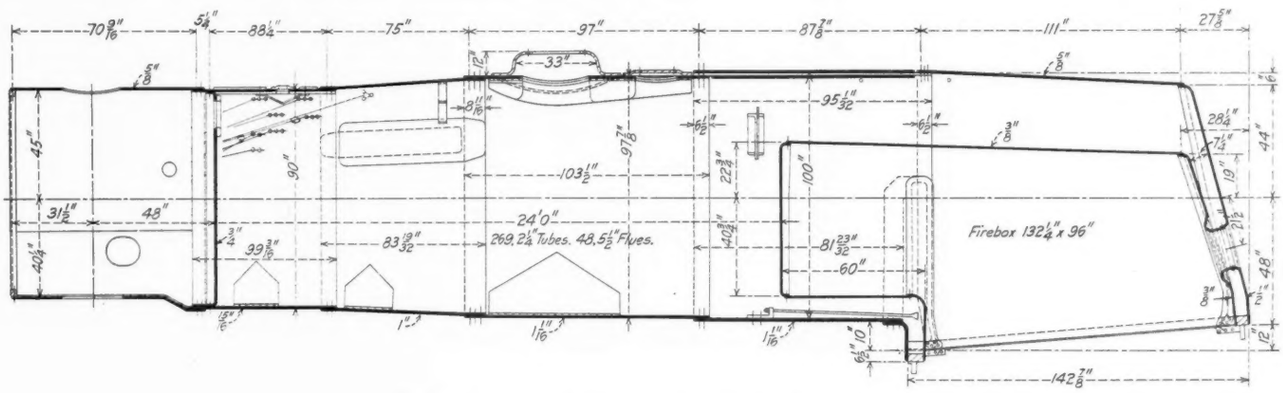
Mallet Locomotives for Use in Road Service

Baltimore & Ohio Engines Exert Tractive Effort of 103,000 lb.; for Use on Ruling Grades Over 2 Per Cent

THE Baltimore & Ohio has recently received from the Baldwin Locomotive Works 15 Mallet articulated locomotives of the 2-8-8-0 type. These engines exert a tractive effort of 103,000 lb., and are used in road service on the Cumberland division, replacing single expansion locomotives of the 2-10-2 type, which have been transferred to a section of the road having lighter grades. The maximum grades on the Cumberland division are 2.4 per cent east bound and 2.28 per cent west bound. The traffic is very heavy, consisting chiefly of coal, and on few roads in this country are more difficult operating conditions to be found.

The boilers of the new Mallets are of the conical type, the second ring in the barrel being tapered, increasing the shell diameter from 90 in. at the first ring to 100 in. at the throat. As far as front end diameter, number of tubes and principal firebox dimensions are concerned, the boilers of the Mallets are similar to those of the 2-10-2 engines previously referred to. The length of the tubes, however, is 24 ft., as compared with 23 ft. in the 2-10-2 type, and the combustion chamber is 32 in. longer. This accounts for an increase in total heating surface of 263 sq. ft. Both engines are equipped with Schmidt superheaters, the Mallets having 86 sq. ft. more superheating surface than the others. The grates and the arrangement of the cab fittings are practically alike in both engines, and both are fired by Street stokers.

The combustion chamber is 60 in. long, and the front end of the combustion chamber crown is supported on three rows of Baldwin expansion stays. There is a complete installation of flexible stays in the water-legs. The middle seam in the barrel, and the seams uniting the throat and outside firebox shell with the fourth ring are triple riveted. Some of the combustion chamber stays are necessarily tapped into the throat and outside shell seams and where this occurs the stays are so located as to replace rivets in the center row. The Security brick arch, in the Mallet type, is supported on five

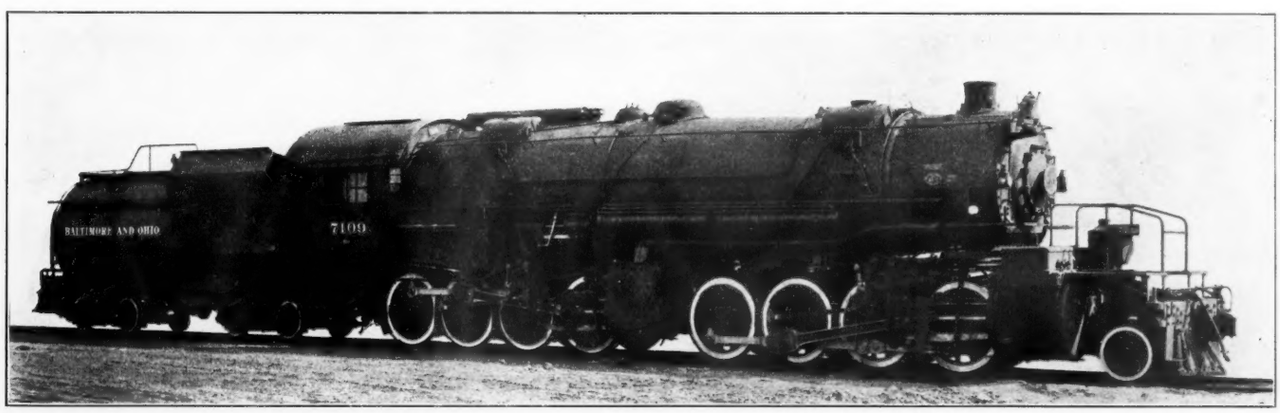


Boiler for the Baltimore & Ohio Mallet Type

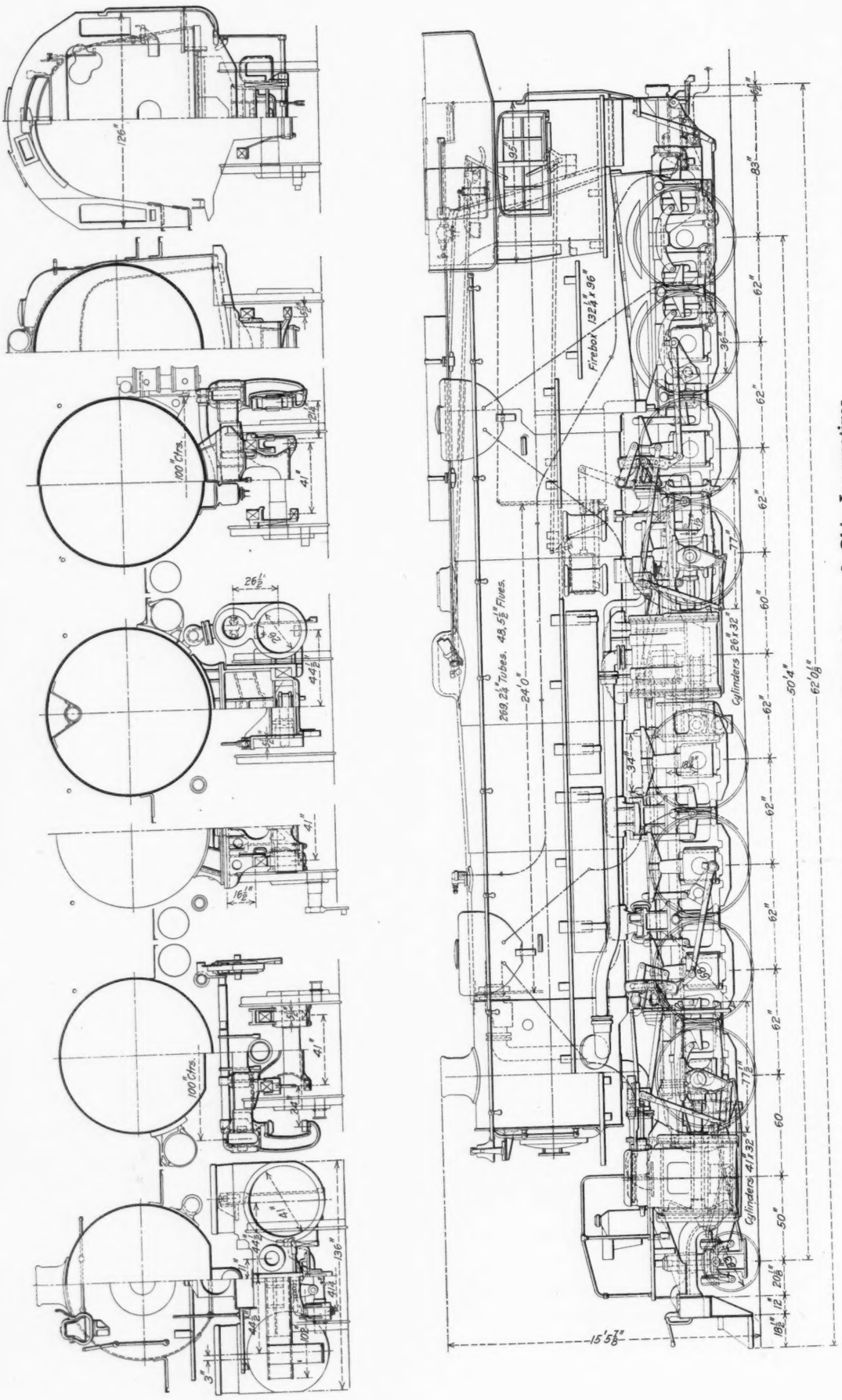
3-in. tubes. These extend from the bottom of the combustion chamber to the back sheet of the firebox. This arrangement of tubes improves the circulation in the horizontal water space under the combustion chamber, and as the arch tubes are comparatively long they add considerably to the firebox heating surface.

The shell plates of the boiler are heavy, those constituting the third and fourth rings being 1 1/16 in. thick. The high-pressure cylinder saddle and the two waist-bearers over the front frames are bolted to the boiler barrel, an inside liner being riveted to the shell in each case. Bolts, rivets and liners are electrically welded to insure tight joints.

The high-pressure steam distribution is controlled by 14-in. piston valves. These have cast iron bodies and malleable iron heads, while the bull-rings and packing rings are of Hunt-Spiller metal. The cylinders and steam chests are fitted with bushings of the same material. The high-



Mallet Locomotive for Road Service on the Baltimore & Ohio

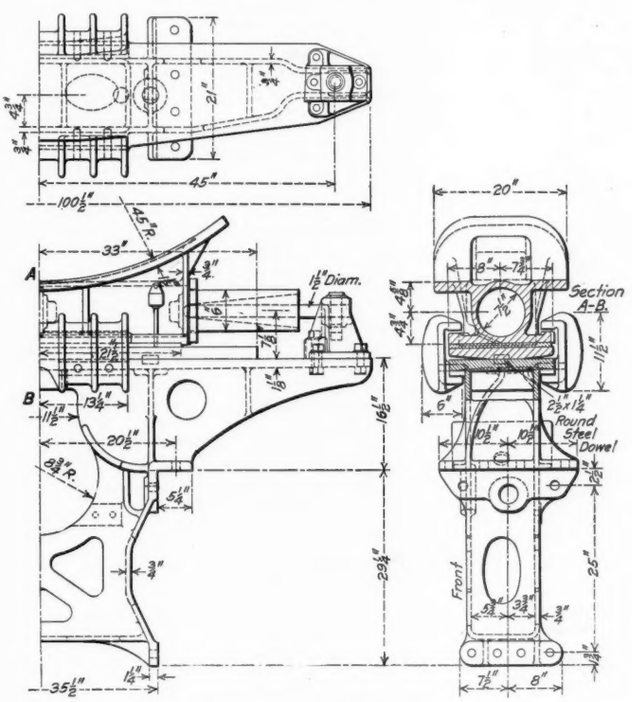


Elevation and Cross Sections of the Baltimore & Ohio Locomotives

pressure cylinder saddle consists of two steel castings, placed one above the other. The bottom casting is provided, on its top face, with lugs at the front and back and keys are driven in against the front lugs, thus making an exceedingly secure joint between the two sections of the saddle. The bottom section is cored out to receive the ball joint at the back end of the receiver pipe.

The low pressure cylinder castings are bolted together on the center line of the locomotive and the axes of these cylinders are set on an inclination of 1 in 39. The low pressure distribution is controlled by Allen ported balanced slide valves. The valve gears are of the Walschaert type, and are controlled by the Ragonnet power reverse mechanism. In accordance with the usual practice of the builders, the front and back reverse shafts are connected by a centrally located reach rod. This rod has a flexible joint which is guided between the inner walls of the high pressure cylinder saddle. The starting valve is of Baldwin design and is placed in a pipe connection leading from one of the high pressure steam pipes to the back end of the receiver pipe.

The high pressure pistons are of box form, each cast in



Forward Waist Bearer

one piece, Hunt-Spiller metal being used; the low pressure pistons have cast steel bodies of dished section on which iron bearing faces are cast. In neither case are extension rods used. The piston rods, main crank pins and main axles are of Nikrome steel.

The articulated connection between the front and rear frames is designed to provide ample flexibility. The radius rod is pinned to the front frames, and has a ball-jointed connection with the hinge-pin. The front and rear frames are neither interlocked nor connected by hanger bolts. For the rear group of wheels there is a continuous equalization system on each side of the locomotive, while in the case of the front group the equalization divides between the second and third pairs of drivers. The Cole design of long driving box is used on the main wheels. The front truck is fitted with three-point suspension links.

The boiler is supported on the front frames by two waist bearers both under load. The wear is taken in each case by a brass shoe ⅝ in. thick which is bolted to the upper section of the waist bearer. This shoe slides on a steel plate, finished transversely to a long radius on its under side, which is held in position by dowels entering the lower section of the waist bearer. The latter constitutes a most effective transverse brace, as it is bolted to both the upper and lower frame rails. The rear bearer supports the brake cylinders for the forward group of wheels, while the front bearer is fitted with the centering springs and suspension clamps.

These locomotives are designed to traverse curves as sharp as 22 deg. The play between rails and flanges is 1 in. on the front and rear wheels of each group of drivers, and ¾ in. on the intermediate wheels. The weight distribution is very satisfactory, as there is a difference of only 1,100 lb. between the total amounts carried by the front and rear groups of drivers.

The Vanderbilt tender has been used on all the freight locomotives recently built for the Baltimore & Ohio. In the present case, the tank is of unusual capacity, as it carries 12,000 gal. of water and 20 tons of fuel. The wheels are of solid forged and rolled steel.

The principal dimensions and ratios are as follows:

General Data

Gage	4 ft. 8½ in.
Service	Freight
Fuel	Bit. coal
Tractive effort	103,000 lb.
Weight in working order	485,600 lb.
Weight on drivers	462,500 lb.
Weight on leading truck	23,100 lb.
Weight of engine and tender in working order	692,000 lb.
Wheel base, driving	41 ft. 2 in.
Wheel base, total	50 ft. 4 in.
Wheel base, engine and tender	87 ft. 5¼ in.

Ratios

Weight on drivers ÷ tractive effort	4.5
Total weight ÷ tractive effort	4.7
Tractive effort × diam. drivers ÷ equivalent heating surface*	751.0
Equivalent heating surface* ÷ grate area	90.4
Firebox heating surface ÷ equivalent heating surface,* per cent	4.9
Weight on drivers ÷ equivalent heating surface*	58.0
Total weight ÷ equivalent heating surface*	61.1
Volume both cylinders	30.4 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	26.2
Grate area ÷ vol. cylinders	28.9

Cylinders

Kind	Compound
Diameter and stroke	26 in. and 41 in. by 32 in.

Valves

Kind	H. P., 14 in. piston; L. P., balanced slide

Wheels

Driving, diameter over tires	58 in.
Driving, thickness of tires	4 in.
Driving journals, main, diameter and length	10½ in. by 16 in.
Driving journals, others, diameter and length	10 in. by 13 in.
Engine truck wheels, diameter	33 in.
Engine truck, journals	6 in. by 10 in.

Boiler

Style	Conical
Working pressure	210 lb. per sq. in.
Outside diameter of first ring	90 in.
Firebox, length and width	132¼ in. by 96 in.
Firebox plates, thickness	sides, back and crown, ⅜ in.; tube, ½ in.
Firebox, water space	front, 6 in.; back, 4 in.; sides, 6 in. to 4 in.
Tubes, number and outside diameter	269—2¼ in.
Flues, number and outside diameter	48—5½ in.
Tubes and flues, length	24 ft.
Heating surface, tubes and flues	5,443 sq. ft.
Heating surface, firebox	393 sq. ft.
Heating surface, total	5,836 sq. ft.
Superheater heating surface	1,415 sq. ft.
Equivalent heating surface*	7,958.5 sq. ft.
Grate area	88.2 sq. ft.

Tender

Weight	206,400 lb.
Wheels, diameter	33 in.
Journals, diameter and length	6 in. by 11 in.
Water capacity	12,000 gal.
Coal capacity	20 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

LONDON & NORTH WESTERN MEN WITH THE COLORS.—A recent poster issued by the London & North Western shows that 18,858, or 20 per cent of its employees have joined the colors, and that thirty have received the distinguished conduct medal, one the distinguished service medal, six the military medal, sixteen have been mentioned in despatches and eleven have been commended by the commanding officer.

THE LOCAL FREIGHT AGENT*

By Fairfax Harrison
President, Southern Railway.

As common carriers it is our business to accept freight from the shipper and deliver it to the receiver, whether on the originating line or on some other line, with reasonable promptness and in as good condition as when it was entrusted to us.

The local freight agent starts and stops every pound of business we handle, and—in the language of the forceful and efficient superintendent of agencies of the Southern Railway who is known to many of you—"If it don't start right, it's dollars to doughnuts it won't stop right." You and I both know the consequences. If a package of freight does not stop right a dissatisfied shipper, a disgruntled receiver and a loss or damage claim are inevitable. It follows that efficient service by the local agent is one of the most effective forms of solicitation, and that efficiency in his office shows directly on the balance sheet.

The most important part of your duty is undoubtedly that connected with the receipt and handling of money and the keeping and rendering of accounts—for substantially all the revenue of the railroad passes through your hands—but next to this, my own belief is, your opportunity for success lies largely in starting a shipment right. I shall not attempt to give you technical advice as to how to do this because you probably all know more about it than I do, but shall make some brief philosophical observations as to efficiency in railroad employment which apply with special force to the local agent.

The local agent is the man on the railroad with whom the public comes most in contact and the opinion which his neighbors have of him is apt to become their opinion of the company. His realization of this will inspire him with a determination to maintain the good name both of himself and of his company. Uniform courtesy in dealing with the public should be the rule of every railroad officer and employee, but it is of supreme importance to the local agent, for discourteous treatment may lead a shipper to give his business to a competing line or to short-haul that of the man who has offended him and it is well for the agent to remember that in reality there is no such thing as a "non-competitive" railroad station. Though the business may have to start by his line, a disgruntled shipper may turn it over to another at the first junction point.

There are many ways in which the local agent and the shipper may co-operate to their mutual advantage, and the most successful local agent will be one who strives unceasingly to bring about this co-operation and especially to secure the intelligent interest of the shipper in the proper packing, marking and loading of his goods. You may make a lifelong friend for yourself and for your company by explaining to a shipper just how certain goods may have been lost or damaged as a result of improper packing, marking or loading. On the other hand, if goods have been lost, damaged or delayed through the fault of the railroad, is it not better to go to the shipper and frankly tell him the whole truth, accept full blame, tell him just what happened, why it happened, what you are doing to prevent the same thing happening again, and show him what he may be able to do to help you? It is human to err, but the wise man profits by his errors and will not make the same mistake twice.

I yield to no one in appreciation of the difficulties of the agent's job. He probably comes into contact with as much meanness and petty dishonesty as any man in business, but where he is successful he probably earns as much esteem and good opinion and gets as cordial co-operation from the great majority of business men who are honest and straightforward as does any public servant.

He must, however, be a versatile man. In addition to having the qualities which make for success in the management of a general merchandise store he must usually be a telegraph operator, a rough and ready lawyer, a first aid surgeon, a substitute for a certified public accountant, a pretty good bank president, a political economist, a peacemaker, a captain of men in action, and an organizer of victory. He must interpret and do his best to enforce a multitude of detailed and often obscure regulations prescribed by law and by public regulating authority as well as those which originate at the railroad headquarters. He must have a patience and good humor which will qualify him for a robe and a harp and a seat in Heaven alongside of Job himself, and, with all this, he must be a self-respecting citizen, a church member and rear a family on a modest wage. It would seem that if every local agent qualified in all of these respects the political parties would all go to your association to find candidates for President of the United States. But seriously, your job is an important job on every railroad and no self-respecting managing officer fails in respect and esteem for the successful agent.

The German army is the wonderful fighting machine that it has proved itself to be, not because the individual soldiers of whom it is composed are in any way superior in natural ability to an equal number of men of any other nationality. Its superiority is due to the fact that, from the time of von Moltke to the present, there has always been at the head of the German general staff a man of the highest efficiency, who would be contented with nothing but superior service throughout the entire organization, from a general commanding an army to a private in the ranks. The same rule holds good in every human organization, including the local agency of a railroad. As the agent is, so will his force be. If he is a man of efficiency himself, who will not be content with anything short of superior service from his entire organization down to the office boy and truckers, he will get that kind of service. There may be different ways of doing this in different parts of the country and in different railroad organizations, but I believe that the best way will uniformly be for the agent to be a leader of his men and not a driver. I know it is the best way on the Southern Railway, for the southern man is hard to drive; but there is nowhere that he will not follow a leader who has his full confidence and respect.

There are three requisites for advancement in railroad service—loyalty, efficiency in your present job, and preparedness for larger responsibilities. Efficiency and preparedness for higher place go together, for that man will be most efficient in his present job who is not content with mere mechanical performance of his duties, but who has an intelligent understanding of them in their relation to the service as a whole, and who has qualified to take over the duties and responsibilities of his immediate superior on a moment's notice. Applying this to the local agency, it follows not only that the agent should be a man measuring up to these requirements for advancement, but that he should carry out the principle in the organization of his force.

I suggest that a young man who gives evidence of a desire and a determination to make the most of his opportunities, should not always be passed over for one whose present qualifications may seem to be superior, but who would probably develop into nothing higher than the mechanical, clock-watching type of employee. Starting with the best material available, every man in the agency should, of course, be expected to perform his immediate duties efficiently, but, in addition to this, he should be encouraged to familiarize himself with all the business of the agency, to qualify himself for any place in it, and to make suggestions for the improvement of the service. The right kind of an agent need not be afraid to have men under him

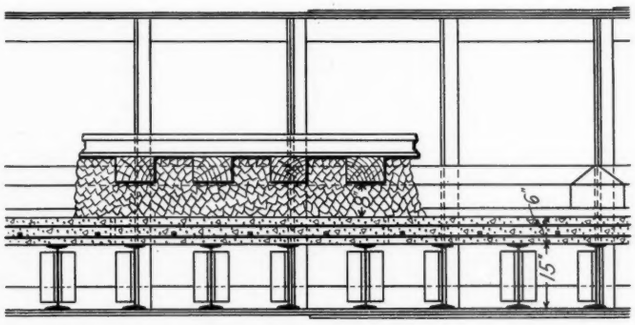
*An address before the American Association of Freight Agents at Cincinnati, Ohio, June 20, 1916.

qualified to take his place, for if he is the right kind of an agent no subordinate will be so well qualified for his place as he himself, and, if his subordinates are all qualified for promotion along the lines I have suggested, by efficiency in their present jobs combined with an intelligent understanding of their relation to the service as a whole, and with preparedness for larger responsibilities, the agent's mind will be relieved of details, he can be a constructive leader, and the work of his agency will be of such high grade that it cannot avoid attracting the attention of his superiors.

SOLID FLOORS FOR THROUGH GIRDER SPAN

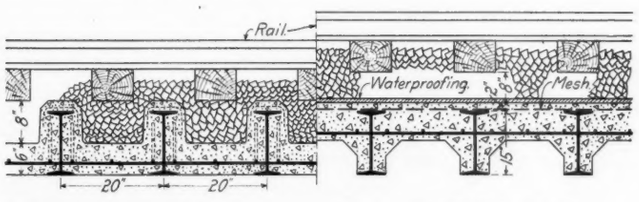
A reinforced concrete floor for use with through girder spans has been developed on the Wabash, which affords a solid floor that is practically equivalent to the concrete deck for ballasted tracks on deck girders. The floor thickness or distance from base of rail to the under clearance is almost as small as it is possible to obtain with any of the usual types of ballasted floors in use.

This floor is a substitute for the combination steel and concrete floors used with through girder spans where head



Type A—I-Beams with Superimposed Slab

room is small and offers several improvements over these earlier types from which it was developed. The most common of these consists of I-beams spanning between the girders to which they are attached by connection angles riveted to the webs. With increased use of ballasted tracks on bridges, there I-beam floors were adapted to this purpose by flooring them over in various ways. Steel apron plates were first used followed by creosoted planking and later by reinforced concrete slabs, designated as type "A" in the accompanying drawings. Concrete as a covering for

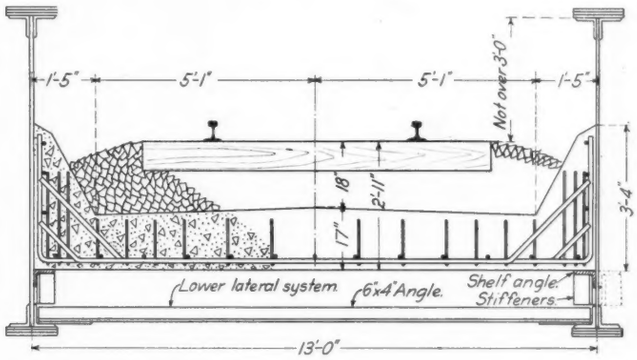


I-Beams Encased in Concrete, Type B—Hollowed Out on Under Side, Type C—Troughs Between Beams on Upper Side

the I-beams has entirely superseded the other materials. The development of the various kinds of floors in track elevation structures is described in an article entitled "The Track Elevation Subways in Chicago," which appeared in the *Railway Age Gazette* on March 6, 1914, page 549.

The principal objection to the type "A" floor, is that it adds 5 or 6 in. to the floor thickness. This difficulty is overcome in some designs by depressing the slab until it surrounds the I-beams and projects only 1 or 2 in. above the top flanges. This, however, adds a large amount of extra dead weight. A method commonly used to overcome this is that shown as type "B" in which the concrete is hollowed out between the beams on the under side, but this requires expensive form work and does not pay unless the beams are at least 18 in. deep and are spaced an equal distance.

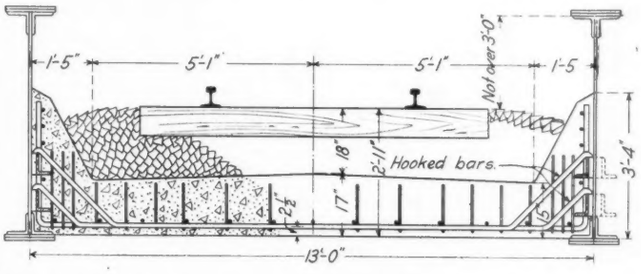
Another scheme which has been used partly for the purpose of saving concrete, but principally for decreasing the head room is that designated as type "C." The slab is hollowed out between the beams on the upper side and the troughlike spaces thus formed are filled with ballast in which the ties are depressed. This form has not been entirely successful because it places certain restrictions on the track



Type D—Slab Bearing on Shelf Angles, Structural Steel Tie Between Girders

construction, and the drainage of these troughs between the beams has proven troublesome.

Concrete slabs spanning from girder to girder have been used extensively to afford ballasted track on deck bridges for a number of years. A. O. Cunningham, chief engineer of the Wabash, has applied the same method to a through span by the use of a monolithic slab of concrete supported between the girders as illustrated by types "D" and "E" in the accompanying drawings. In the case of type "D," the slab is not connected rigidly to the girders, but bears on shelf angles



Type E—Girders Tied Together by Slab Suspended Between Them

riveted against the webs on the inside, these shelf angles being supported on short stiffener angles. As the load of the slab is placed upon the shelf angles it is eccentric with respect to the girders, and there is a tendency for the latter to rotate in a direction that would move the top flanges inward and the bottom flanges outward. This turning moment is resisted at the bottom by a lower lateral system of the ordinary type and at the top by the concrete parapet or curbing which extends above the top face of the slab, and bears against the web of the girder.

The main reinforcement of the slab consists of 1⅛-in. diameter rods, spaced 4 in. center to center, and running transversely from girder to girder. These bars are given three types of bends at the ends to take different positions

within the parapet. Half-inch rods, spaced 12 in. center to center, run lengthwise of the girders and ½-in. stirrup bars, variously spaced, loop every third main reinforcement bar.

The type "D" floor was designed to bring the elevation of the base of rail high enough so that the flanges of the girders will not cut into the standard bridge clearance diagram. By keeping the base of rail within a distance of three feet from the backs of the upper girder flanges the clearance is not interfered with. This leaves a space between the bottom of the slab and the lower flanges which is occupied by the shelf and stiffener angles. In bridges under 50 ft. in length and where a minimum headroom is required, the space between the bottom of the floor and the lower flanges is not sufficient for these angles. To overcome this the type "E" floor was devised, which brings the slab into partial bearing on the lower flanges of the girders. There is no structural steel connection between the two girders in the present design, dependence for a tie between them being placed entirely on the slab structure and its connection to the girders. An additional tie bar or strap riveted between the lower flanges at about 5 ft. intervals would tend to relieve the stress in the reinforcing bars of the slab and to resist the overturning moment.

The slabs are secured to the girders by means of sockets attached to the girder web, into which the reinforcing bars are hooked. These sockets are formed by riveting 6 in. by 4 in. by ½-in. angles 8 in. long to the web, from which they are separated by filler plates 1⅜ in. thick. Two fillers are provided for each angle, and being separated 1⅜ in. a square hole is formed, which serves as a socket for the reception of the hook bar. These sockets are arranged in two rows for the entire length of the girders and serve, with the bottom flanges, as supports for the slab.

Except for the details of the ends of the main reinforcing bars, to permit them to hook into the sockets mentioned above, the reinforcement in the type "E" floor is the same as in the type "D" floor. This type "E" floor gives a total depth of 2 ft. 11 in., including ballast, which is about the same as that obtained with a floor composed of I-beams imbedded in concrete. The I-beams, however, are saved and the extra cost of bending and placing the heavy steel reinforcement is offset by the saving in the field riveting of the I-beams to the girders. Like any concrete floor, it is imperative that the track on which the span is to be placed be taken out of service until the concrete can be placed and cured, or else arrangements must be made to erect the girders and concrete the slabs to one side of the final location and roll or slide them into place.

A comparison of costs of ordinary I-beam floor construction and types "D" and "E" shows slightly in favor of the latter. The following is an estimate based on the normal prices of materials and omitting duplicate items.

DESIGN A

0.43 cu. yd. reinforced concrete at $7	$3.01
50 lb. reinforcing rods at 2½ cents	1.25
407 lb. structural steel at 2 cents	8.14
	$12.40

DESIGN D OR E

0.74 cu. yd. reinforced concrete at $7	$5.18
208 lb. reinforcing rods at 2½ cents	5.20
78 lb. structural steel at 2 cents	1.56
	$11.94

The Wabash has prepared plans, incorporating the new floor designs in grade separation work on which it is expected to start work in the near future. It also has in service in St. Louis, a bridge of similar design in which the floor is supported partly on the lower flanges and on reinforcing rods, which pass through the stiffener angles of the girders. This bridge has given satisfactory service and demonstrates that this type of floor can be built and operated successfully.

REPORT OF A. R. A. COMMITTEE ON MOBILIZATION

The American Railway Association Special Committee on Co-operation with the Military Authorities has submitted to the executive committee of the association a preliminary report of its work in connection with the mobilization of the National Guard, as follows:

In May, 1914, following a determination by the War department to co-ordinate the agencies required for emergency transportation of large bodies of troops and military supplies, a letter from the quartermaster general suggested to the president of the American Railway Association that the association locate an officer in Washington who could advise with the quartermaster corps on this subject. A member of the executive committee was at once designated a sub-committee to pledge the co-operation of the American Railway Association in any practicable way. After conference an understanding was reached as indicated in a letter dated May 22, 1914, addressed to the quartermaster general by such sub-committee, a portion of which was as follows:

"We are advised that the routing of all movements of troops will be determined in your office and that you do not desire any co-operation or assistance from any association of the railways in determining such routing.

"We are advised that you do not want us to do anything at this time, but it is understood that, upon notice from you to me at my office, the American Railway Association will designate a representative to co-operate with your office in all matters relating to the transportation of troops and supplies, other than the routing thereof, to the end that the actual movement upon the route or routes you shall have selected may be facilitated and expedited. In the event of emergency demanding immediate action in this respect, I have undertaken to send a competent representative of the American Railway Association to put himself at your service on the same day that you call for him, but, if and as it is convenient to you, we will appreciate several days' notice so that the executive committee of the American Railway Association may be summoned to meet in Washington to designate a representative to be stationed in Washington for such service so long as he is required, and to make any other arrangements for co-operation which may be then agreed upon."

Here the matter rested until October 26, 1915, when the Secretary of War referred to this discussion and suggested that the American Railway Association establish a committee to whom the War department could look for information that might be desired as to the railroads of the United States.

In response to this invitation the executive committee appointed a sub-committee of four to confer with the Secretary of War, and later constituted the members of such sub-committee as the present Special Committee on Co-operation with the Military Authorities, the creation of such special committee being ratified by the association at its May, 1916, meeting. Immediately after its first appointment this committee sought and had a conference with the Secretary of War on December 6, 1915, and were then told that the Special Committee would be advised further how its co-operation might be made effective. Subsequently informal conferences were had also with officers of the general staff and of the quartermaster department, but, pending official determination of a method and a point of contact for official co-operation, no definite work of preparation for the co-ordination of the railways with the military authorities could be undertaken. On May 16, 1916, the Secretary of War advised the chairman of the Special Committee as follows:

"The quartermaster corps is, by army regulations, charged with the duty of providing for transportation of troops, munitions of war, military property and stores, and it is requested that you advise the quartermaster general when it will be convenient for your committee to consult with representatives

of the quartermaster corps relative to such action as may be necessary with a view to co-ordination and co-operation between the railroads and the War department."

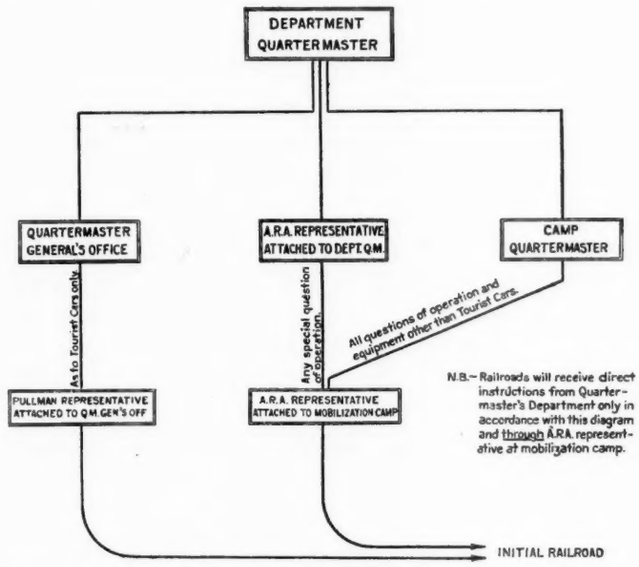
Under this direction the Special Committee arranged a conference on May 29, 1916, with Col. Chauncey B. Baker of the quartermaster department in charge of military transportation by rail.

At this conference Col. Baker outlined his individual views of a basis for co-operation in an able and exhaustive paper which he submitted to the committee. Such paper discussed, among other things, principles for the study of

First: The co-ordination of the railways, as a whole, with the broad principles or plans of procedure which are or are to be developed, passed upon and finally approved.

Second: The orderly movement of troops or ammunition in accordance with the general policy outlined in paragraph No. 1 above; this in co-operation with the quartermaster corps.

While the committee was engaged in studying Col. Baker's paper, affairs on the Mexican border became critical. On June 18, 1916, orders were issued for the mobilization of the militia of the several states. On June 19 a tentative list of the camps in each state at which state troops were to be



Plan of Organization as to Relation Between Military Authorities and the Railroads

mobilized was furnished to the Special Committee by the quartermaster department, with the request that the American Railway Association designate a railway official thoroughly conversant with transportation for duty at each camp; this official to report to the camp quartermaster; and that a similar representative be designated to consult with the department quartermaster at the headquarters of each of the military departments.

The railroads interested were immediately asked to name competent men for the duty outlined, and through their prompt action it was possible to notify all concerned of their names in Circular 1701, June 24, 1916. In the meantime a tentative plan for the work of such representatives of the association was prepared in conference with the War department. This plan of organization was distributed in a bulletin issued June 27, 1916.

Mobilization was quickly followed by orders to move those troops which were most nearly prepared for service on the Mexican border. The Special Committee was not consulted as to routings, but one of its first serious problems was that of providing for interchange of passenger equipment in order fairly to protect the lines originating movements of troops. At a general conference of the railways called by the Special Committee and held in Washington June 28, 1916, the chairman of the Special Committee was directed to establish a bureau for handling the distribution of passenger equipment of all railroads members of the American Railway Association, necessary for the movement of troops and the return of same. In accordance with this direction such a bureau, located in Washington, has been established under the supervision of George Hodges, who has been designated as Secretary of the Special Committee on Co-operation with the Military Authorities.

It was further desired by the War department that, as a part of this bureau, there be appointed inspectors for the American Railway Association at border points, in charge of a chief inspector to be located at the department headquarters at San Antonio. The railways were requested to designate individuals to perform this service, and on July 6, 1916, Bulletin No. 5 was issued containing their names. The function of these inspectors is to keep all concerned fully informed as to conditions at unloading points, in order to avoid congestion so far as may be possible.

The Special Committee has issued various bulletins for the information of the railways in respect of details of general interest.

The work of the Special Committee in relation to the movement of troops has so far been largely one of organization for efficiency. It has been conducted, under pressure for prompt action, without previous preparation and without precedents. It can be done better another time. The experience has been valuable for all concerned, as it has developed mutual confidence and an understanding with the military authorities which has made the work one without friction with the responsible representatives of the government. The Special Committee gratefully acknowledges the cordial, unselfish and unstinted support which it has had from all the railways, without which its efforts would have been futile. The unanimous expression of willingness to exchange passenger equipment, something entirely new in railroad experience in any national sense, has been evidence of a sincere patriotism. The work of the representatives at department headquarters and at the mobilization camps is also to be highly commended. Thrown into a novel experience, without other instructions at the start than to represent all the railways and to do what seemed necessary, they have given new evidence of the versatility and efficiency of the American railroad officer. The official governmental appreciation of what has been done is expressed in the following letter, dated at the White House, June 24, 1916, and forwarded to the president of the American Railway Association:

> The Secretary of War has just called my attention to the arrangements made by The American Railway Association for co-operation by the railroads of the country with the Quartermaster General and the Quartermaster's Corps, and to place at the service of the government for military purposes the railroads of the country in the emergency created by the call to arms of the National Guard.
>
> I beg to express to your associates my appreciation of the effectiveness of this co-operation and of the patriotic impulse which led to its spontaneous suggestion by The American Railway Association.
>
> Cordially yours,
>
> WOODROW WILSON.

This preliminary report is intended to contain merely a recital of the circumstances which justified prompt and somewhat unprecedented action by a committee of the association in making co-operation with the War department an accomplished fact. A further report will attempt to deal with the problems encountered and to make certain suggestions which may be of value in similar circumstances in the future.

RAILWAY GAGES OF AUSTRALIA.—It is said that, in order to unify the gages between Queensland, New South Wales, Victoria, South Australia and Western Australia, an expenditure of $180,060,000 to $228,725,000 would be involved, while it is asserted that a third rail could be placed at an expenditure of about $12,165,000.

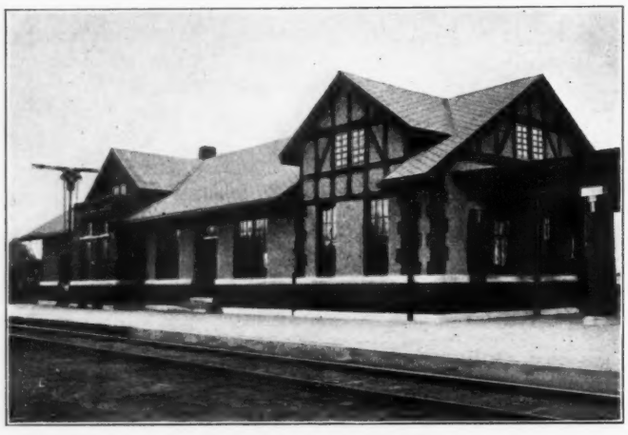
A SUBSTANTIAL PASSENGER STATION

The accompanying photographs show two views of the new passenger station of the Chicago, St. Paul, Minneapolis & Omaha, at Chippewa Falls, Wis., and illustrate a substantial type of station for towns of moderate size. While not a fireproof building, because of a timber frame roof, the fire hazard is reduced to a minimum by the use of fireproof tile for the walls and asbestos shingles on the roof. In addition to well-selected proportions, considerations of esthetics have been well taken care of, by covering the tile walls with stucco and trimming with hard burned brick quoins at all

Rear of the Station

angles and half timbered gables. Architectural skill is also displayed in the treatment of the projecting bay of the agent's office, and in holding back the gable above it, to clear the train order board.

The arrangement is simple, embodying in order from one end,—a baggage room, an agent's office, an entrance lobby from the team side, the main waiting room, a women's room and the toilet facilities. An ample shelter is provided at the end of the building. A basement is provided of sufficient size to house a boiler room and a coal bin, and space is



The Station from the Track Side

afforded in the attic, with a stairway leading from the agent's office for the storage of records.

The floor of the building with the exception of the baggage room is raised three steps above the platform level, and is constructed of reinforced concrete and hollow tile, spanning the full width from wall to wall. The baggage room has a floor on the platform level, consisting of concrete slabs on an embankment. The platform is of brick around the building, with cinders for the wing platforms, all enclosed by concrete curbs.

The entire interior of the building with the exception of the baggage room is plastered, Keene's cement being used for a five-foot wainscot with hard plaster above. All of the floor except in the agent's office and in the baggage room, is covered with small cement tile, in two colors, grey and red. A terrazzo base extends around all the rooms for a height of 10 in., and joins the floor with a cove, to facilitate cleaning. The agent's office floor is covered with ⅞-in. maple to afford easier footing. The woodwork is birch, having a dark stain with a dull finish and the walls and ceilings are painted in three colors. The outside woodwork is rough and has a dark brown stain.

The heating system is direct steam with plain enamelled radiators. The fixtures in the toilet rooms are plain earthen ware with exposed plumbing. Ventilation is afforded by means of registers near the floor and ceiling. The building and platforms are electrically lighted and all electric work for lighting and telephones is brought in through an underground duct to a cutout box in the agent's office.

The building was designed and constructed under the direction of H. Rettinghouse, chief engineer, and H. P. Padley, principal assistant engineer and architect of the Omaha. Baumeister & Co., St. Paul, were the contractors.

TRAIN ACCIDENTS IN JUNE[1]

The following is a list of the most notable train accidents that occurred on railways of the United States in the month of June, 1916:

Collisions.

Date	Road	Place	Kind of Accident	Kind of train	Kil'd	Inj'd
16.	Ulster & D.	Arkville.	bc	P. & F.	1	4

Derailments.

Date	Road	Place	Cause of Derailm't	Kind of train	Kil'd	Inj'd
†2.	Chicago, R. I. & P.	Packard.	flood	P.	17	49
2.	Wabash	Saunemin	tornado	P.	0	18
3.	Great Northern	Katka.	slide	F.	2	0
6.	Denver & R. G.	Colton.	acc. obst.	P.	6	9
7.	Chicago & A.	Francis.	b. rail	P.	0	16
15.	Boston & M.	W. Peabody.	acc. obst.	P.	0	2
15.	Balt. & Ohio.	W. Alexander	unx	F.	0	0
17.	Tuscarora V.	E. Waterford.	washout	F.	1	1
17.	Texas & Pac.	Putnam.	acc. obst.	P.	0	..
18.	Southern Pacific	Wellton.	b. rail	P.	0	3
22.	Louisville & N.	Long View.	.....	P.	0	4
26.	Ches. & Ohio.	Hurricane.	b. rail	P.	0	1

The trains in collision on the Ulster & Delaware near Arkville, N. Y., on the 16th were an eastbound passenger train and a westbound train consisting of a locomotive without train. Both engines were damaged, but the cars did not leave the rails. One fireman was killed, and two trainmen and two mail clerks were injured. The light engine had encroached on the time of the other train, which was regular passenger No. 18.

The train derailed near Packard, Iowa, on the morning of the 2d (reported in the *Railway Age Gazette* of June 23) resulted in the death of 17 passengers and the injury of 46 passengers and 3 employees. It was the Chicago-Minneapolis express, No. 19, and the cause of the disaster was the weakening of the south abutment of the bridge over Flood creek. A worktrain had passed over the bridge about 25 minutes before train 19 reached that point, and nothing wrong was seen at that time.

The train derailed near Saunemin, Ill., on the morning of the 2nd was southbound passenger No. 17. The first six

[1] Abbreviations and marks used in Accident List:
rc, Rear collision——bc, Butting collision——xc, Other collisions——b, Broken——d, Defective——unf, Unforeseen obstruction——unx, Unexplained——derail, Open derailing switch——ms, Misplaced switch——acc. obst., Accidental obstruction——malice, Malicious obstruction of track, etc.——boiler, Explosion of locomotive on road——fire, Cars burned while running——P. or Pass., Passenger train——F. or Ft., Freight train (including empty engines, work trains, etc.)—Asterisk, Wreck wholly or partly destroyed by fire——Dagger, One of more passengers killed.

cars in the train were blown off the track by a tornado. Sixteen passengers and two employees were injured.

The train derailed near Katka, Idaho, on the 3rd was eastbound passenger No. 4. The engine was overturned and fell down a bank into Kootenai river. The engineman and fireman were drowned. The derailment was caused by a rock slide.

The train derailed near Colton, Utah, on the 6th at 1 a. m. was westbound passenger No. 15. The engine and four cars ran off, and a freight engine standing on the siding was badly damaged. The engineman, fireman and four trespassers were killed and five trainmen and four trespassers were injured. The derailment occurred at a switch and was caused by a hose, on the locomotive, falling down and catching between the rails.

The train derailed at Francis, Mo., on the 7th was a westbound passenger. Three cars were overturned and 16 passengers were injured. The cause of the derailment was a broken rail.

The train derailed near West Peabody, Mass., on the 15th was an eastbound passenger. The engineman and fireman were injured, but no other persons on the train were hurt. The cause of the derailment was an automobile truck on a crossing. The truck was wrecked, and its driver was fatally injured.

The train derailed at West Alexander, Pa., on the 15th, at 1 a. m., was an eastbound freight, drawn by two engines. Both of the engines were ditched in a cut, and, with 11 cars of coal immediately following, blocked the cut so that the road was not opened for 18 hours. The cause of the derailment is believed to have been excessive speed.

The train derailed on the Tuscarora Valley Railroad near East Waterford, Pa., on the 17th consisted of a locomotive, five freight cars and two passenger cars. The wreck was caused by a washout which left the rails and ties in position so that the engineman did not see the defect in the track soon enough to stop. The engine and four freight cars plunged into the gully. The fireman was killed and the engineman injured.

The train derailed near Putnam, Tex., on the 17th was westbound passenger No. 1. Four passenger cars ran off the track and about 25 passengers were slightly injured. The derailment is believed to have been due to the breakage of some part of the locomotive.

The train derailed at Wellton, Cal., on the 18th at 12:22 a. m. was westbound passenger No. 1 consisting of 11 cars. The train was running about fifty miles an hour and four cars left the rails. One passenger and two trainmen were injured. The cause of the accident was a broken rail. The rail was found to have been piped along the upper part of the web and the lower part of the head.

The train derailed at Long View, Ala., on the 22nd was southbound passenger train No. 1. Four of the passengers were slightly injured. The cause of the derailment was a loose rail.

The train derailed near Hurricane, W. Va., on the 26th of June was westbound passenger No. 3, second section, and the tender and three coaches were ditched. One passenger was injured. The cause of the derailment is believed to have been a broken rail.

Electric Car Accidents.—Of the accidents to electric cars noticed by the newspapers as occurring in the United States in the month of June, two were reported as attended with fatal results. Near New Castle, Pa., on the 23rd a rear collision between a freight car and a passenger car in a fog injured a large number of passengers; two at least fatally, and six probably so. On the Manhattan Elevated, New York City, near One Hundred and Forty-ninth street, on the 8th, a rear collision resulted in the death of the motorman. This collision was reported in the *Railway Age Gazette* of June 16, page 1342.

AN EIGHT-YEAR HISTORY OF ARBITRATION

The special report of the United States Board of Mediation and Conciliation on the effects of arbitration proceedings on rates of pay and working conditions of employees, ordered printed by the Senate in May, will shortly be issued as a congressional document. The report, as will be recalled, was called for by a resolution of the Senate. It is said to be the most comprehensive study of the results of arbitration ever made in the United States. While the board expresses no opinions and makes no summary, the report shows how arbitration has in practically every instance benefited the employees. It includes all arbitration proceedings held under the provisions of the federal law, and also a review of four other cases—the arbitration in 1911 between the Youngstown & Ohio River Railroad and its employees, the arbitration in 1912 between locomotive engineers and 52 railroads of the East, the arbitration in 1912 between the Georgia Railroad and its conductors, and the arbitration in 1913 between the Norfolk & Western and its maintenance-of-way employees.

The general method pursued was to compare rates of pay and working conditions before and after the awards of the arbitration boards. Each case has been presented under seven general heads: history of case; articles of arbitration agreement; testimony and argument of employees; testimony and argument of the railroads; comparison of the requests of the employees with the award of the board; application of the award of the board to operating conditions; changes in rates of pay and working conditions by individual railroads as the result of the arbitration award.

An appendix summarizes Federal legislation relative to the mediation and arbitration of railway labor disputes.

The cases reviewed are as follows:

Year

1907—Southern Pacific (Atlantic system) and Brotherhood of Locomotive Firemen and Enginemen.

1907—Southern Pacific (Pacific system) and Order of Railroad Telegraphers.

1909—Georgia Railroad and Brotherhood of Locomotive Firemen and Enginemen.

1909—Illinois Central, Yazoo & Mississippi Valley and Indianapolis Southern railroads and the Order of Railroad Telegraphers.

1910—Eight railroads leading out of Chicago and Switchmen's Union of North America.

1910—Cleveland, Cincinnati, Chicago & St. Louis and Order of Railroad Telegraphers.

1910—Baltimore & Ohio Southwestern and Order of Railroad Telegraphers.

1910—Fifty-three railroads in western territory and Brotherhood of Locomotive Firemen and Enginemen.

1910—Southern Railway and Order of Railroad Telegraphers.

1910—Missouri Pacific system and Order of Railroad Telegraphers.

1910—Denver & Rio Grande and Brotherhood of Locomotive Firemen and Enginemen.

1911—Coal & Coke Railway and Brotherhood of Locomotive Enginemen, the Order of Railway Conductors and the Brotherhood of Railroad Trainmen.

1912—Fifty-two railroads in eastern territory and Brotherhood of Locomotive Engineers.

1913—Fifty-four railroads in eastern territory and Brotherhood of Locomotive Firemen and Enginemen.

1913—Forty-two railroads in eastern territory and the Order of Railway Conductors and the Brotherhood of Railroad Trainmen.

1913—Chicago & Western Indiana and Belt Railway Co. of Chicago and the brotherhoods of engineers, firemen and trainmen.

1913—Chicago, Burlington & Quincy and the brotherhoods of conductors and brakemen.

1913—Wheeling & Lake Erie, Wabash Pittsburgh Terminal, and West Side Belt railroads, and their telegraphers, telephone operators, station agents and signalmen.

1913—Southern Railway and maintenance-of-way employees.

1914—Georgia & Florida Railroad and the brotherhoods of engineers and firemen.

1914—Ninety-eight railroads in western territory and the brotherhoods of engineers and firemen.

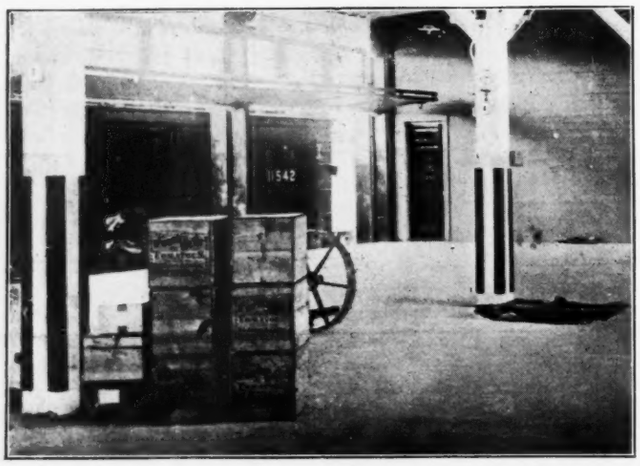
Georgia Railroad and the brotherhoods of conductors and brakemen.

Norfolk & Western and its maintenance-of-way employees.

1911—Controversy between the Amalgamated Association of the American Street Railway Employees of America and the Youngstown & Ohio River Railroad.

MASTIC FLOORS FOR RAILROAD BUILDINGS

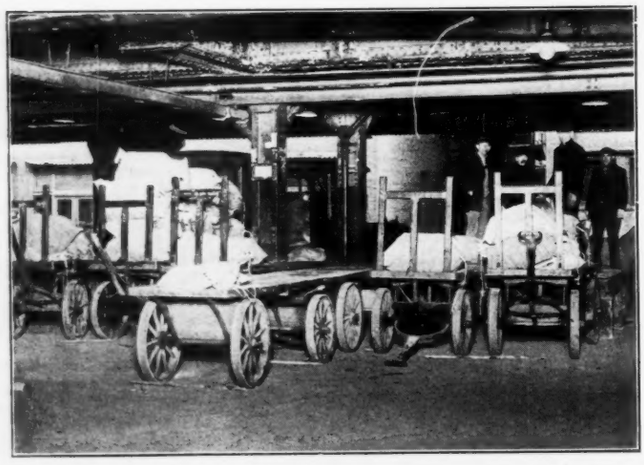
Floors made of a mastic of hard aggregate, cemented together with bitumen compounds have proved applicable to a wide range of conditions. A floor of this type which has met with extended success is the J-M Mastic Flooring of the H. W. Johns-Manville Company. In this floor the aggregate may be either crushed limestone, granite or torpedo sand, with particles ranging from a size passing a ¼-in. screen down to those which will pass a 200-mesh. The



Great Northern Freight House at Great Falls, Mont.

cementing material consists of Trinidad Lake asphalt and other natural asphalts properly combined by fluxing oils.

Success with this type of floor demands a careful grading of the aggregate particles and their intimate mixture with the cementing materials in a manner that will insure the densest possible product in which even the finest particles are thoroughly coated with asphalt. To insure that this will be properly done in the J-M floor, the aggregates passing the

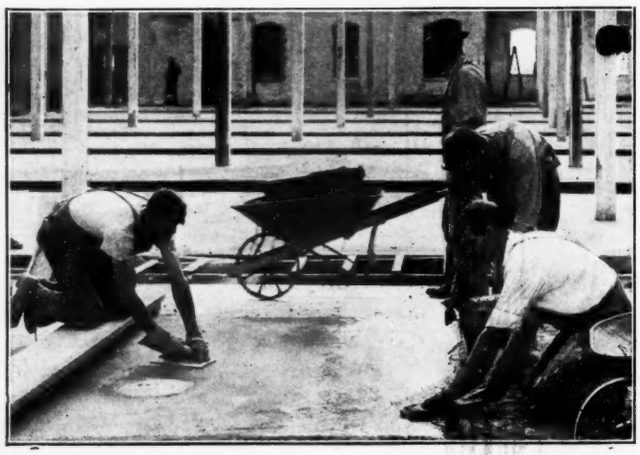


Heavy Trucking Service—Mail and Baggage Room, La Salle Street Station, Chicago, Ill.

60 screen are combined with the asphalt at the plant rather than at the site of the work. To this end they are heated and mechanically agitated for a period of six to seven hours and then moulded into blocks of convenient size for shipment. On the work these blocks are broken up and reheated to a temperature of 450 deg. F. and mixed with a coarse aggregate, using a pure asphalt flux. The resulting softened mass is transported to the work in oak buckets or iron wheel barrows and is laid down in one or two courses depending upon the required thickness and trowelled to the desired surface. The process of spreading and trowelling is exacting work which must be done by skilled and experienced artisans.

This floor can be applied to any base that is sufficiently strong and unyielding for the particular service required and may consist of concrete, wood, brick or tile. The thickness commonly varies from 1 to 1½ in. The thinnest floor is used where a walking surface only is desired. An intermediate thickness of 1¼ in. will suffice for light trucking, while the 1½-in. thickness will serve for heavy trucking service.

This floor is said to possess a variety of desirable qualities which make it suitable for widely differing services. As it is quiet, resilient and not slippery it has an advantage in situations where persons are compelled to walk or stand for long periods of time. The facility it offers for sweeping or washing is an advantage in many installations. Because it is water-, alkali- and acid-proof, it is applicable to many special purposes. It is odorless and sanitary, an important consideration in freight or warehouses, where perishable or easily contaminated goods may be stored. The facility it offers for repairs may be used to good advantage in the relocation of machines in shops, or in making other alterations. As a result of the service to which floors of this kind



Laying Mastic Floor in Car Repair Shop, Chicago & North Western, Chicago, Ill.

have been subjected for a number of years it is being recommended for service of a most severe character.

The application of this floor to railroads includes baggage, express and mail rooms, stair treads and platforms in passenger stations. It also includes freight houses, storerooms, cold storage rooms, corridors, toilet rooms, machine shops, round houses and battery rooms. Among the railroads which have floor installations of this kind may be mentioned the Canadian Pacific, the Pennsylvania Lines, the Southern, the Illinois Central, the Rock Island, the Sante Fe, the Erie, the Lackawanna, and the Lehigh Valley. The Calgary shops of the Canadian Pacific contain 10½ acres of this mastic floor which has been in use 3½ years. In the Topeka shops of the Sante Fe, 21,000 sq. ft. of this floor has had three years of service. The Southern has freight houses at Richmond and Mobile containing 52,000 sq. ft. An installation of 90,000 sq. ft. in the Memphis passenger terminal of the Illinois Central has withstood two years of use.

RAIL EXPORTS.—Rail exports from the United States averaged 38,594 gross tons per month from January to May, 1916. This five months' average compares with 38,379 tons per month in 1913, the record year. For the eleven months ended May 31, 1916, the average was 44,730 tons per month.

Efficiency Testing in Train Service

Rationale of Effective Methods; the Difference Between Efficiency Testing and Surprise Checking

By H. E. Haanel
Trainmaster, Canadian Pacific, Regina, Saskatchewan

ONE is altogether prone to refer to efficiency testing as something novel—the progeny, perhaps, of these times of high tension and calculated effort, which, in the commercial and industrial realms more especially, have finally resulted in a method of keying up to standard pitch the individual as well as the ensemble performance of labor. While it is true that the adoption of efficiency tests in various garbs to suit conditions has spread with amazing rapidity of late, one may find evidences of its existence no matter how deep into history he may wish to delve, and it might not be incorrect to state that in all ages it has in some form been the inseparable companion of notable achievement. Napoleon's phenomenal success at arms was in no small measure due to his remarkable organization, which was kept up to the mark through the continual application of efficiency tests. One day at Schoenbrunn, for instance, "As the engineer corps passed with about forty wagons, the Emperor cried 'halt!' and, pointing out a wagon to General Bertrand, ordered him to summon one of the officers. 'What does that wagon contain?' 'Sire, bolts, bags of nails, ropes, hatchets and saws.' 'How much of each?' The officer gave the exact account. His Majesty, to verify the report, had the wagon emptied, the pieces counted, and found the number correct, and, in order to assure himself that nothing was left in the wagon, climbed up into it by means of the wheel."

In railroad work, particularly the operating department, the field for efficiency testing is almost illimitable, and here it should thrive and produce abundant fruit. Essentially, efficiency testing is the unexpected creation of situations, in the performance of meeting which will be demonstrated the quickness of perception, preparedness for action, knowledge of correct procedure and ability to put such knowledge into practice. To suggest situations the tester has at his disposal many of the general rules, special instructions and legal enactments upon which the safety of the movement of passengers and freight depends, and, for material to test, he faces many degrees of mental and moral fiber in the gamut of employees from despatchers to trackmen. While an efficiency test proper is made by creating a situation as stated, many important rules and safety regulations obviously cannot be employed in this way, and that such are being properly fulfilled can only be ascertained by observation. When such observations are made without the previous knowledge of the parties concerned they are termed "surprise checks," and are classed as efficiency tests. For instance, to observe from a moving train whether or not operators put the board in the stop position behind the trains; for two testers to take positions a mile apart and check the speed of passing trains; to watch, unknown to him, a brakeman throwing a switch to ascertain whether or not he verifies the position of the points; the cutting off of engines before taking water; the signing by engineers of their conductors' copies of orders; the inspection of trains by trainmen. These are among the surprise checks that can be advantageously made in the interest of efficiency.

Note the distinction between these checks and the following examples of efficiency tests. The tester places one detonator on the rail and retires from view. When a train explodes it, the tester makes a note of the promptness on the part of the engineman in stopping his train and whistling out a flagman. He also notes how promptly the flagman gets away, the distance he goes and how quickly he reaches the required distance. He notes also how the conductor and other brakemen employ their time, how promptly the train gets to moving again, etc., and when it is gone, the tester goes back to see that the detonators have been properly placed by the flagman.

Or the tester may leave a fusee burning on the track; place two detonators on the rail; extinguish a train order light; withhold the answer to the whistle signal indicating the display of green signals carried; put any semaphore or signal at stop, etc., and watch the performance of the men affected. A test in which there is the slightest element of danger should, of course, not be made. To produce nervousness is to diametrically oppose the proper function of this work. For a tester, for instance, to turn a switch light so it shows red to an approaching train might cause the men on the engine to jump off. Tests of this nature were actually made on some roads in the early stages of the work, but these are now carefully avoided. Quite recently the Northern Pacific decided to abandon the uncovering of headlights on sidings as it was considered hazardous.

Someone has said that real railroaders are born and not made. Certain it is, however, that an appreciable percentage of the employees in the train and engine service are "misfits"—men who may be endowed with health and with apparent moral and mental soundness, but who seem never to fully comprehend the subtleties of safe and expeditious train operation, and who sometimes by their unconscious remarks and acts, plainly evidence an absence of keen apprehension and peculiar alertness which is so certain sooner or later to result in trouble. Often indeed is a disaster directly traceable to such a man, or to the collective performance of a combination of misfits. Excepting the "chance taker," the most insidious danger is from the misfit who can answer promptly and correctly any question regarding his work, who indicates anxiety to perform efficiently and against whom in the routine work no fault can be found; but who fails miserably at the psychological moment because of the sudden creation of conditions or circumstances which demand unusual treatment and quick action; or who, when an emergency arises, is not "on the job" because of his lack of the intuitive appreciation of responsibility. It is to locate and cure or remove such menaces to life and property that efficiency tests and surprise checks are employed. At the same time the tests and checks keep the meaning and application of important rules and instructions fresh in the minds of all employees, and, by such constant practice and repetition, the general performance can be made to grow toward perfection. "The highest efficiency is obtained by keeping the men constantly on the lookout for an unusual condition. The rank and file of older men are highly efficient in their way, but a laxity sometimes exists even among the older men, and when they are spurred to extraordinary effort by an unknown quantity, the service and the public at large profit by the experience."

An employee should receive without delay a written notification concerning any test with which he was concerned. If he properly fulfilled the requirements of the test he should have the satisfaction of knowing it. On the other hand also,

he should be fully informed of any detail of his performance which could be improved, and such notifications as are passed from one employee to another—which they are sure to do—should be kept track of. The dissemination of profitable information—whether by formal or informal methods—may be the means of preventing someone else from committing the same error. In such ways also, an employee may pick up knowledge of little details about which his pride, perhaps, has kept him from openly inquiring. The other day a conductor confessed to me that for months when he was a brakeman he started his fusees by lighting them in his lantern, and he only found out the right way of doing it after hearing the trainmaster speak to another young brakeman who had ignorantly thrown away the scratch cap and was attempting to light a fusee in a high wind with a sulphur match. Not long ago a passenger engineman ran past a flag and a serious and costly collision resulted. After the dismissal of this man many of the trainmen were known to give a sigh of relief and to make a remark to the effect that this engineer had been in the habit of disregarding flagmen. A passenger train running at full speed was derailed at an open switch on a curve and six lives were lost. It was found that the engineer was at the time with his fireman on the left side of the engine watching the crowds on the fair grounds they were passing. After the inquest a fellow employee who knew the engineer well passed the remark, "That's the end-up of all habitual chance takers."

Other examples are in my mind, involving nearly every class of operating employees, but these two I cite because they concern passenger engineers—men of long service, of whom Dame Fate had deferred the inevitable doom certainly long enough to have given efficiency testing, had it been resorted to, every chance to effect a remedial cure or cause the excision of the menace by dismissal of the man before any catastrophe occurred.

On many roads in the States efficiency testing is conducted wholly by the trainmasters. On the road with which I am identified it is the duty of all district officers to participate in the work, and I think this the more efficient arrangement. A test which is expected because of the crew being forewarned fails in its purpose, and this, unfortunately, is very often the case when district officers conduct the tests. It is next to an impossibility to keep secret an officer's movements. If anyone wants to know exactly where I have been during the last 24 hours, he can have his curiosity gratified by the first trainman he meets. As I go from place to place I hear inquiries ticked off by the telegraph instruments, and this system, together with signs and countersigns with passing trains, keeps every uneasy employee fully posted. Of course, the uneasy employee as a rule is the doubtful one. Under such conditions efficiency testing is extremely difficult if not altogether abortive. Then, again, to be productive of satisfactory results, testing, particularly where there are many crews, must be carried on continually. The occasional test has little result other than the irritation of the men tested and the social ostracism of the tester. Unintentionally one man may be involved so many times that he comes to believe that he is singled out for destruction, and most of his fellow workers on the same district, since they had escaped any test because they did not happen to enter the test zones when the tests were on, begin to murmur among themselves about unfairness; and seeds of discord are sown.

The aim and purpose of constructive efficiency testing should be systematically to test *every* employee *frequently,* and to *uncover* and *remedy,* by educative or punitive measures, the weaknesses, if any, in *every* man. Not a single road on the continent, to my knowledge, yet approaches anywhere within hailing distance of this ideal. One road, for instance, has drawn up a set of 17 tests. One of each of these tests is made every 30 days. Another road has seven tests which are made on each division twice a month—14 tests a month for each division—and so on. Is it possible to put every employee through a comprehensive drill with tests so infrequently made?

On a certain road the number of signal operations in two years was ninety millions, while in the same period the efficiency tests affecting the observance of those signals numbered only some ten thousand. That is, for every nine thousand signal operations *some* engineman was subjected to *one* signal test. Can this be considered effective? A trainmaster who has a large territory under his jurisdiction—in fact, any officer in charge of a department requiring close supervision—cannot spare the necessary time for doing this important test work systematically and to the extent required. Because of this it has often occurred to me that better results would accrue were a special man assigned to a division to work on the several districts thereof in conjunction with the district officers. This man, who would be subject to the instructions of the superintendent of any district on which he may be operating, but who would send periodical statements to the higher officers, could be frequently exchanged for the man in similar capacity on another division so that his identity would not be so easily revealed. Such efficiency experts should of course be thoroughly capable operating men, of known integrity; men convinced of the importance of this work and having the courage of their convictions. With this organization one should look for a growing uniformity and efficiency in the performance of employees over the entire system; the multiplication of possible tests and improvements in conducting them, and lastly, the reduction to a common basis of the understanding and effort of all officers concerned.

From inquiries I have made all over the continent I find that unfortunately there are minor officers who by word and action deliberately discourage efficiency testing, and in so doing render difficult if not fruitless the efforts of their colleagues who are otherwise inclined. It is not inconceivable that such officers would relegate to their clerks the task of submitting periodical reports of fictitious tests and thus perfunctorily fulfill their routine obligations rather than actively participate in a work of the merits of which they are not convinced and which, through a false sense of proportion, they characterize as "gum shoeing" or "pussy footing," and therefore contemptible. By judicious handling, the efficiency expert should in time transform such officers and, in revealing by demonstrations the intrinsic value to the company and employees alike of the end sought, might convert them into earnest co-workers. If not, then other and more drastic treatment should be employed rather than submit to a continual threatening of the esprit de corps on a division and rather than countenance the spectacle of a crew of officers attempting to row their bark of organization into the harbor of efficiency by pulling in opposite directions.

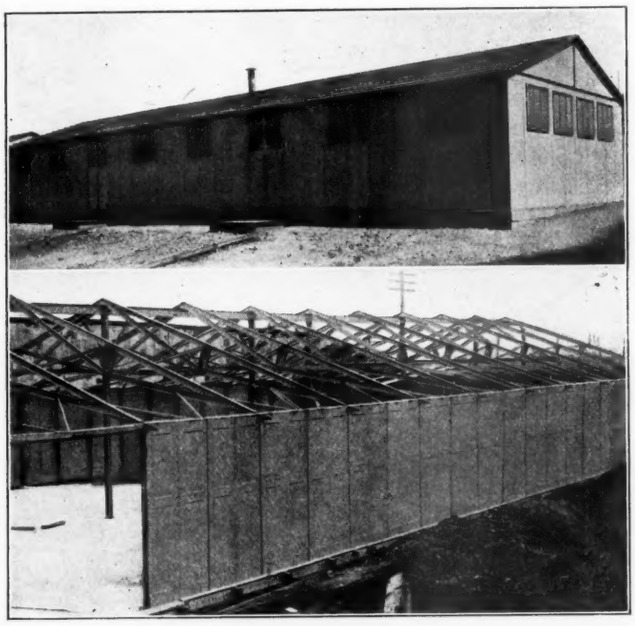
Efficiency tests fairly and judiciously conducted obviously result in the better protection of the trainmen themselves. Many of the better class employees individually acknowledge the benefit from tests and are ready to cite cases which prove it. Incongruously enough, however, against these tests and the men who make them there seems to be a widespread prejudice which is both deep-rooted and determined. An employee who knows his business, who is honest with himself and his employer and who is conscientious in his work needs never fear being caught; on the contrary, he should feel a personal pride in demonstrating his ability and proving his integrity and trustworthiness. That such antipathy, where it exists, is purely selfish and unworthy, is indisputable. This is shown by the approval generally expressed by one class of employees of tests made of another class. The men making the tests should be prompted by a high idea of service, and contemptible indeed is one who takes an unfair ad-

vantage or who experiences any personal satisfaction in catching an employee in the wrong. After Napoleon had conducted the efficiency test recited at the beginning of these notes, the chronicler goes on to say—"There was a murmur of approbation and cries of joy all along the line. 'Bravo,' 'Well and good,' they said. All these things combined to make the soldiers adore the emperor." Adoration is a strong word for these modern times, but between tester and employee should exist at least mutual respect, and a sympathetic appreciation of mutual responsibilities.

PORTABLE STEEL BUILDINGS

The steel building units, manufactured ready to erect in buildings of various sizes by the Trussed Concrete Steel Company, Detroit, Mich., represent an example of highly developed unit construction whereby a limited number of kinds of units are given a wide range of applicability. Buildings made of these units are available for use on railroads as tool houses, bunk houses and other buildings of various sizes and uses, with the advantage that they are made of non-combustible material, are quickly and easily erected and may be taken down and re-erected at a new location in a short time and at small expense.

Aside from the carefully worked out details and accurate workmanship which make the units perfectly interchangeable, the success of the system is based on a simple fastening of



Above—The Completed Building, Below—The Frame

the tee-bolt and wedge type with which all parts are secured, using no other tool than a hammer. The buildings consist essentially of pressed steel panels for the side walls, with electrically-welded flanges, having a standard height of 7 ft. 10 in., and a standard width of 2 ft. or multiples thereof. The walls are stiffened by structural steel mullions or studs, which are enclosed between the flanges of the adjoining sections. The parts are secured to a tight fit by means of the standard tee-bolt connections mentioned above. Special corner panels are provided as well as door and window panels, the last two being equipped with standard grades of hardware. The window panels contain electrically welded steel sash equipped with pivoting and adjusting devices.

The room consists of special overlapping units, secured by clips which insure watertight construction. This is supported on electrically welded steel trusses available in eight span lengths, varying from 6 to 28 ft., inclusive. Lateral and sway bracing are also provided to make a rigid structure. These buildings may be placed either on a timber or concrete foundation, the only special requirements being a level bearing surface. Two men can readily handle any section and can erect any size of house without assistance.

This unit system offers great flexibility as to the arrangement of the finished houses, the only limitation being the height of the side walls and the span lengths for the standard roofs. The lengths of the houses, the number of windows and doors, and the size and location of the same may be varied to suit the conditions encountered.

JOINT GRADE CROSSING REPORT

Members of the American Railway Association committee on the prevention of accidents at grade crossings, met in Chicago, June 28, in a joint meeting with representatives of the National Association of Railway Commissioners and adopted the resolutions printed at the end of this article, confirming and making more definite the action of the American Railway Association, at its meeting May 17, concerning safety at highway crossings.* The chairman of the meeting was Hon. Thomas Duncan, of Indiana, and the other state representatives were Hon. J. H. Wilson, of Iowa, and Secretary James B. Walker, of New York (First District). The railroads were represented by five of the seven members of the committee, namely, J. A. McCrea, Long Island, who was made secretary of the meeting; C. L. Bardo, New York, New Haven & Hartford; W. J. Towne, Chicago &

Proposed Distant Signal on Highways for Automobilists

Hand Signal for Use at Highway Crossings

North Western; J. Q. Van Winkle, C. C. C. & St. L., and Howard Elliott, San Pedro, Los Angeles & Salt Lake.

The discussions developed a marked unanimity of sentiment. While the conclusions reached are substantially the same as those which have resulted from previous discussions, the members of the conference by no means contented themselves with copying what had been said before; they examined numerous devices, and took a trip over the suburban lines of the Chicago & North Western to examine and experiment with the conditions at a number of crossings.

It is increasingly evident that proposals for legislation concerning safety at crossings will soon become a prominent subject in many states. The agitation concerning automobile accidents at crossings, thus far, has been most pronounced in New England, in California and in the region of Chicago; but very soon the subject will be of interest in all of the states. The discussion developed a feeling that the American Automobile Association ought to have a prominent voice in anything that is done toward legislation or in relation to uniformity in any respect, and Messrs. Walker and McCrea

*The meeting of May 17 was reported in the *Railway Age Gazette*, May 19, page 1101, and June 9, page 1219; and the action of the Colorado State Commission on the crossing question June 16, page 1348.

were appointed a sub-committee to meet a committee of that association as soon as practicable. The principal feature in which the present resolutions mark progress is that embodied in resolution No. 1, the distant signal for wayfarers; and the question of the immediate future is that concerning the duty of providing and caring for these signals. The prevailing sentiment of the meeting was that the signals should be maintained by the state or the municipality, and that laws should be enacted to prevent their destruction or abuse.

The accompanying illustrations explain the descriptive matter in resolutions 1, 4 and 5. The letters on the disks are 5 in. high, those in the 24 in. disk being 3¾ in. wide and those in the 16 in. disk 3 in. wide. The larger disk has its backside painted black; the smaller is the same on both sides. The photographic view of the crossing gates has a poor background; but the introduction of this feature was perhaps intentional, as showing the effectiveness of the stripes in making the gates visible at a distance. The resolutions, as finally adopted, are as follows:

"Whereas in the opinion of this joint meeting of the Committee on Grade Crossings and Trespassing on Railroads of the National Association of Railway Commissioners and the Special Committee on the Prevention of Accidents at Grade Crossings of the American Railway Association the time has come for the establishment of uniform methods of protecting all grade crossings of railroads, after a full discussion of the matter the members of both said committees have agreed upon and adopted the following recommendations:

(1) That every grade crossing should be protected by an approach warning sign, to be placed in the highway at a distance not less than 300 feet on each side of the railroad tracks, the sign to be a circular disk not less than 24 inches in diameter painted white with a black border and black cross lines with the letters "R R"—as shown in the accompanying drawing. Where deemed necessary this approach warning sign to be properly lighted at night.

(2) That the railroad companies maintain, within the limits of their rights of way, proper cautionary signs such as are now in use or authorized by law, and where deemed necessary such signs shall be equipped with a red light at night.

(3) That all lights displayed at night towards the highway at grade crossings shall be red.

(4) That all crossing flagmen use during the day a uniform disk 16 inches in diameter painted white with a black border and the word "STOP" painted thereon in black letters about 5 inches high, instead of the vari-colored flags which are now being used.

(5) The uniform painting of all crossing gates with alternate diagonal stripes of black and white.

(6) That the railroad companies, wherever practicable, be required to maintain their property at grade crossings free of obstructions to vision; also that the highway approaches to crossings shall be so graded that the free passage of vehicles shall not be impeded.

(7) That the National Association of Railway Commissioners, the American Railway Association, and the American Automobile Association, consider the advisability of agreeing upon whatever legislation may be necessary in the several states to make thoroughly effective the protection of grade crossings; and that it is our opinion that a uniform law requiring vehicles approaching such a crossing to reduce speed to a safe limit at the warning approach sign is advisable.

Proposed Standard Coloring for Crossing Gates

THE ACTIVITIES OF A RAILROAD TEST DEPARTMENT*

By C. D. Young

Engineer of Tests, Pennsylvania Railroad, Altoona, Pa.

In a recent publication of the Bureau of Information of the Pennsylvania Railroad, the advantages of a test department are aptly summarized as follows:

"It costs half a million dollars or so to run the Pennsylvania Railroad's test department a year, but the management regards the outlay as one of the company's best paying investments. Every dollar spent for tests comes back, with interest many times compounded, in accidents averted and in the lengthened life of engines, cars, tracks, and structures. The test department exists for the purpose of promoting in the highest possible degree the safety of passengers and employees and the utility and durability of everything used in the operation of the railroad. This, in the end, is the truest economy."

Our work has contact with almost all activities of the railroad, but is more intimately associated with the motive power department than with others, and as showing what has been accomplished, we are very gratified to find a reflection of our achievements in the annual report of the railroad for 1915, where a decrease in the operating expenses is attributed to the fuel saved by increased locomotive economy. This has been brought about by the use of certain devices upon the locomotive, as well as by the success of the mechanical engineer in designing locomotives particularly suitable for the work which they are called upon to perform. From a review recently published and bearing upon this point, I quote the following:

"It is seldom that the saving made by a particular mechanical device is relatively large enough to deserve mention in the annual report of the Pennsylvania Railroad. This year, however, a large part of the saving made in transportation expenses is attributable to more effective work of locomotives in both freight and passenger service as the result, on the one hand, of the equipment of locomotives with superheaters and, on the other, of the marked success which has been met with in obtaining locomotives designed for exactly the work which they are called upon to perform.

* From a paper read at the May meeting of the Railway Club of Pittsburgh.

"The economies which have been made by the introduction of the superheater and by the tests which are being carried on by the motive power department each contains material for extensive discussion; but the point that may without over-emphasis be made here is that the success of these two factors bulks large enough to be reflected in the final aggregate figures for the Pennsylvania Railroad's showing for the year."—*Railway Age Gazette,* March 3, 1916, page 383.

Through the work of our locomotive testing plant, information has been disseminated bearing upon the design of the locomotive and its operation and thus indirectly bringing about the results mentioned.

It is now 42 years since this department for the testing of materials had its small beginning—the first department of its kind, to my knowledge, on an American railroad or on any railroad—and it has grown rapidly and continually. For the past 18 months the department has been located in the new laboratory building.† This building has 41,000 square feet of floor area in 50 rooms divided into physical, electrical, chemical and bacteriological laboratories, each with its accessories; and located in separate buildings are the locomotive testing plant and the brake shoe testing plant. In addition to these, the road equipment of the department consists of a dynamometer car and a chemical laboratory car.

An important phase of our work is the inspection of material purchased and the formation of specifications.

The principal duties of a large testing laboratory are not only those necessary to keep informed as to the developments in quality and as to changes made for commercial reasons, in the various materials purchased by the railroad, but also to endeavor to co-operate with other laboratories, both of manufacturers and consumers, in unifying their views regarding the specifications which shall be selected for each of the purchased materials. A great deal of this work of harmonizing and unifying specifications has been accomplished during the past few years and has resulted in materially benefiting both the consumer and manufacturer, in that specifications agreed upon by a large number of people benefit all concerned in the following ways:

First.—The manufacturer, without risk or loss on account of unsalable stock, can anticipate the needs of the large buyer and make material in accordance with what is accepted as good practice, so far as chemical and physical properties are concerned. Therefore, when the consumer is in the market he can readily obtain what he desires, as the manufacturer has some of the material of the grade in question either under way or completed, awaiting orders.

Second.—This fact necessarily reduces the price at which the product can be sold because the manufacturer's production under uniform specifications may safely become large, and, instead of making a variety of products to meet a given demand, a single standard product is made for that particular demand or purpose. A lower price, however, does not necessarily mean that the manufacturer obtain less profit on his material; it may be quite the contrary, as he may, even at a reduction in the price to the consumer under uniform specification purchases, be able to make even larger profits than before, because the same consumer and other consumers purchase a given grade of material more frequently and in larger quantities.

Third.—If buyers are satisfied that, for their service, a material which meets a uniform specification will serve their requirements, they should adopt such specifications, as this will permit them to carry a smaller stock of material in order to protect their necessities for the reason that manufacturers will then be in a better position to furnish what the purchasers desire under short notice. A reduction in the total number and total amount of stocks held for emergency demands effects in turn a further money saving for the purchaser.

This work of harmonizing the various views of manufacturers and consumers and the framing of specifications in which they concur, has been an important part of the work of our test department, because, for the reasons outlined, it is felt that a great benefit may be derived by such agreement. The larger number of our specifications are the result of this procedure, and it is suggested, as most desirable and logical for the smaller purchasers—who do not have laboratories providing for the carrying out of research work to establish the requirements of their specifications—that they adopt such uniform specifications as have been created between those manufacturers and large consumers who do have the laboratories. Such specifications are to be found in the proceedings of the Master Car Builders' Association, American Railway Master Mechanics' Association, American Railway Engineering Association and the American Society for Testing Materials.

A strong argument for uniform specifications is found in the interchange of cars, for, undoubtedly, it will be conceded that the material entering into their construction should satisfy all owners at once. Obviously, where cars are freely interchanged, much of the good effect of the use, by one owner, of material fulfilling a specification designed to insure safety of operation, is partially or wholly nullified if the cars of some other owners, built under an improper specification, and of material *not* of the desired quality and *not* insuring equal safety of operation, come upon his line through the regular course of business interchange, and have to be operated by him.

The Interstate Commerce Commission inspection of locotives tends to bring about like inspection and test conditions for all motive power and other important railway equipment as at present adopted or fast being adopted for cars. Proper uniform specifications for locomotive parts will certainly tend to make such equipment more acceptable to the Government authorities.

Mr. Turner (Westinghouse Air Brake Company) has suggested the use of the Pennsylvania Railroad specifications. I suggest the specifications of the Society for Testing Materials and the M. C. B. Association because you will find these practically identical and much broader in some terms than ours, and they would probably better fit your conditions. Ours are constructed along a certain line of policy and they might not so nearly meet your views as the more general specifications of the societies mentioned.

The manufacturers have gotten to a point where they will accept these specifications without question. Pittsburgh manufacturers, I think, are pretty much of a unit in agreeing that it is desirable to have specifications, and it means that you are now buying a superior article for less money and the manufacturer is making perhaps a larger margin of profit than he formerly did. So if I have made clear, to the consumers particularly, that it is desirable to have uniform specifications, such as the Lloyds, or the British and the German specifications, all of which are not equal to the American specifications of today, I will have accomplished my aim, and I think you will be well pleased with the materials you purchase under these specifications.

†For a description of the work and equipment of the Pennsylvania Railroad's test department see the *Railway Age Gazette,* July 2, 1915, page 6.

RAILWAYS IN GERMAN SOUTH-WEST AFRICA.—In German South-West Africa there were 1,318½ miles of state-owned and 129½ miles of privately owned railway, and during the war railways of a total length of 215 miles have been constructed by British forces. In addition to the 100 miles between Swakopmund and Usakos converted to the union of South Africa standard gage of 3 ft. 6 in., the Union Railway Administration, on the instructions of the South African Government, has taken over all these railways, and the question as to what, if any, amount is to be charged for them against the railway capital account is to be decided later. The railway administration is of the opinion that the railways in question are not likely to be a source of revenue for many years to come.

FRANK H. BRITTON

Frank H. Britton, president of the St. Louis Southwestern, died at his home in St. Louis on July 26 from stomach trouble. Mr. Britton was one of the fairly large number of successful operating officers who have served an apprenticeship on the Hill lines. He was on the Great Northern from 1894 to June, 1899, and during those five years worked his way up from superintendent of the Montana division to assistant general superintendent of the western district. When Mr. Britton went to the St. Louis Southwestern as general superintendent in 1899, Edwin Gould was president and Russell Harding, vice-president and general manager. Mr. Britton went to the Texas lines and at that time the St. Louis Southwestern was operating 1,250 miles of line, with gross earnings of $5,862,000 and with an operating ratio of 68.68. The average trainload in 1899 was 179 tons. Mr. Britton was made president of the St. Louis & Southwestern of Texas a year after he went to the Cotton Belt, and two years later was made vice-president and general manager of the entire St. Louis Southwestern. The year 1913 was the best in the history of the property, the operation in the two years since having been seriously affected by floods and abnormal conditions in the cotton producing states, due to the war.

In 1913 the St. Louis Southwestern operated 1,609 miles of road and had gross earnings of $13,297,000, or at the rate of $8,263 per mile of road. The operating ratio was 69.31 per cent, but the ratio of transportation expenses to gross, which is a better index of operating efficiency, was but 30.38. The total average trainload of freight was 349 tons in 1913. The company was paying 5 per cent on its $20,000,000 preferred stock and had nearly a million dollars surplus to credit to its profit and loss account.

Frank H. Britton.

The St. Louis Southwestern is an Edwin Gould road. From the time Mr. Britton came into the property its operating officers were given a far greater latitude in the matter of expenditures for upkeep and in initiative as regards management than the operating officers of any other Gould properties. With a thorough training as an operating officer in about the best training school in the world for operating officers—the Hill school—Mr. Britton combined the ability to take responsibility and to carry to successful completion his own ideas of operation. The St. Louis Southwestern has been one of the most successful roads in its territory and much of the credit for this must be given to F. H. Britton. His principles of operation were sound; he never starved the property; he believed in giving good service to the public and did so. The dining car service on the St. Louis Southwestern is better than the public has any right to expect. It is carried on at a loss, of course, to the St. Louis Southwestern, but was one of those concrete instances where Mr. Britton showed in a practical way his belief that there were certain duties which a road owed to the public even when the fulfilling of these duties from a shortsighted point of view might be considered at the expense of the stockholders. As a matter of fact, a measure of the St. Louis Southwestern's success has been pretty surely due to the esteem in which it is held by its patrons.

Mr. Britton had the ability to earn and keep the loyalty of his subordinates, and a railroad officer who has this quality has one of the most to be desired qualities that an executive can have.

Frank H. Britton was born November 29, 1850, at Ovid, N. Y. He began railroad work in August, 1869, as telegraph operator on the Michigan Southern & Northern Indiana, now part of the New York Central. In June, 1869, he went to the Chicago & North Western as telegraph operator, and two years later became assistant train despatcher on the Louisville & Nashville at Clarksville, Tenn. In December, 1874, he was promoted to chief train despatcher of the South & North Alabama division, with office at Birmingham, Ala., and five years later was made trainmaster. In February, 1880, he was made trainmaster of the Mobile & Montgomery and Montgomery & Selma divisions. In June, 1882, Mr. Britton was appointed superintendent of transportation of the Chesapeake, Ohio & Southwestern, now part of the Illinois Central. In February of the following year he was made superintendent of transportation of the Chicago division of the Baltimore & Ohio, and in 1886 was appointed superintendent of this division. He was out of service for a year prior to June, 1893, and was then made general superintendent of the Minnesota & Wisconsin, now part of the Chicago, St. Paul, Minneapolis & Omaha. In September, 1894, he was appointed superintendent of the Montana division of the Great Northern, and in December, 1895, superintendent of the Fergus Falls division. In 1898 he was made assistant general superintendent of the western district, holding this position until his appointment in June, 1899, as general superintendent of the St. Louis Southwestern. In March, 1900, Mr. Britton was made vice-president and general manager of the St. Louis Southwestern system, and in April, 1912, was elected president of the company.

USING SHELLS NOT UP TO SPECIFICATIONS.—A large munitions manufacturer, when he found that over 5,000 cartridge cases had been spoiled, evolved the idea of making an ornamental beverage holder from a shrapnel shell fuse and cartridge case. The cartridge case contains a rack holding four glasses; inside the shell is a container which holds the beverage, and the fuse acts as a cover. The original shrapnel shell, loaded and ready for firing, sold for $15. This beverage holder, not "loaded" nor made to specifications, sells for $10.—*From an article in a recent issue of Machinery.*

General News Department

The Buffalo, Rochester & Pittsburgh has placed its name, in conspicuous lettering, on all overhead bridges where state highways cross the railroad; this for the purpose of giving people in automobiles a convenient landmark and to make the name of the road familiar to everybody.

The Long Island Railroad, in the five days of heavy traffic incident to the Fourth of July holiday season, moved 5,361 passenger trains with an average delay of 4 minutes, 33 seconds. This statement is made in connection with the record of the same 5-day season for the eight years since 1908. The average delay was considerably greater than in any previous year because principally of a derailment at Flatbush avenue, July 1, and a fire, due to a short circuit, on a long trestle on July 3. The number of passengers shown in this 5-day record, 1,029,721, is more than 10 per cent greater than the number recorded last year. There has been a steady increase during the eight years except that 1912 shows a smaller business than 1911. The number of carloads of express and baggage moved in these five days, 1,077, is almost 50 per cent greater than the number reported in 1915.

"13"

The St. Louis & San Francisco, in connection with its campaign against trespassing, is distributing among its employees who come in contact with the public a leaflet headed, "Are you to be one of the unfortunate thirteen?" The leaflet contains a statement of the number of trespassers killed annually on the railroads of the United States, showing that an average of 13 persons is killed every day because of using railroad tracks for a highway. The leaflets are to be distributed among the public by the employees.

The Congressional Investigators

Senate joint resolution No. 60, providing for a general investigation of railway transportation, was signed by President Wilson on July 20. The members of the investigating committee are: Senators Newlands, of Nevada; Robinson, of Arkansas; Underwood, of Alabama; Cummins, of Iowa, and Brandegee, of Connecticut; and Representatives Adamson, of Georgia; Sims, of Tennessee; Cullop, of Indiana; Esch, of Wisconsin, and Hamilton, of Michigan. Congress appropriated for the expenses of this committee $24,000.

The Wage Controversy

The votes of the train and engine employees on the question of authorizing their leaders to call a strike were expected to be in the hands of the general chairman on Wednesday, July 26. The general chairman of the Eastern and Southern roads are to meet in New York not later than August 1, and those from the Western roads not later than August 5, to count the ballots, after which there will be another conference with the National Conference Committee of the railroads.

E. D. Levy, general manager of the St. Louis & San Francisco, has issued a notice that as the train, engine and switching crews on the Frisco are voting on a strike, he will receive applications for employment in such positions, to be sent to him at Springfield, Mo. Mr. Levy expresses the hope that a strike will not be declared but says that he believes in preparedness.

The Denver Clearing House Association recently passed resolutions expressing its disapproval of a strike of the railway trainmen and calling on Congressmen "to interest themselves in the passing by Congress of such a measure as will have the effect of instructing and empowering the Interstate Commerce Commission to take cognizance of these conditions, and effect a fair and equitable adjustment as between the railroads and their employees, thereby preventing a nation-wide railroad strike."

The Railroad Commission of Nevada has adopted resolutions urging both sides in the railway wage controversy to submit their demands to arbitration. The resolutions say: "A general strike, with all the hardships, waste, suffering and loss that would follow from demoralization of the service is at once serious to contemplate, and is intolerable. The principles of arbitration are recognized and approved by all civilized nations and peoples, and arbitration is regarded as the most effective method for securing fair, peaceful and equitable adjustments to all concerned." The commission adds that "it is our earnest request that the refusal of the employees to accede to the offer of the managements to arbitrate be reconsidered, and that out of regard for the public welfare they submit to arbitration."

Landmarks in Signaling History*

INTERLOCKING.

YEAR.

1846—Signal and switch levers concentrated (England).
1847—Stevens' improved arrangement of levers.
1856—Saxby interlocked the levers.
1867—Saxby's patent on latch-lacking.
1873—London & North Western had 13,000 levers.
1874—First interlocking in America (Spuyten Duyvil).
1877—First extensive commercial interlocking in America (Manhattan Elevated).
1884—First pneumatic interlocking (Bound Brook).
1890—First all-electric interlocking (Taylor's).
1890—First electro-pneumatic interlocking.
1891—Eighteen hydro-pneumatic plants in service (482 levers).
1894—Forty-six electro-pneumatic plants (1,600 levers).
1913—Four hundred and forty all-electric plants (21,370 levers).
1915—Pennsylvania (East and West) had 20,000 levers.

BLOCK SIGNALS (MANUAL).

1842—Sir W. F. Cooke proposed the telegraph block system.
1844—Eastern Counties Railway used the block system (abandoned because of the expense).
1851—South Eastern Railway used electric bell code for signaling from station to station.
1852—Tyer's tablet system.
1854—London & North Western used block system with visual-indicator instruments.
1864—Space interval used between New York and Philadelphia.
1876—Metropolitan Railway (London underground), ran trains (by block system) at 3½ minute intervals, or eighteen trains an hour.
1882—First controlled manual in America (New York Central).
1884—First single track block signaling in America (Canadian Pacific).
1889—Webb & Thompson staff system.
1915—Controlled manual system used on 2,600 miles in the United States.

AUTOMATIC BLOCK SIGNALS.

1871—First automatic block system; Hall enclosed disks (Eastern Railroad, Massachusetts).
1872—Closed track circuit; William Robinson.
1879—First track circuit automatic block signals (clock work) (Fitchburg Railroad).
1885—First electro-pneumatic automatic block signals.
1891—First extensive use of automatic block signals on single track (Cincinnati, New Orleans & Texas Pacific).
1899—Second extensive use of automatic installation on single track (Chicago & Alton).
1915—Union Pacific and Southern Pacific had automatic block signals on 4,466 miles of road, single track.

*From a paper on "Railroad Day and Night Signals," by B. H. Mann, signal engineer of the Missouri Pacific, read before the Engineers' Club of St. Louis, April 12, and printed in the club's journal for May. Mr. Mann, employed by the Union Switch & Signal Company, worked on the Cincinnati, New Orleans & Texas Pacific in 1891. In 1898 he was at the South Station, Boston; in 1899 on the Chicago & Alton; 1903, Missouri Pacific. The earliest date shown in connection with the block system (1842) is two or three years later than the date (December, 1839) given by Clement E. Stretton as that in which the block system was introduced, for a short distance, on the Great Western, at the instance of Messrs. Cooke & Wheatstone.

REVENUES AND EXPENSES OF RAILWAYS

Month of May, 1916

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
* Atlanta, Birmingham & Atlantic	640	$173,114	$41,550	$233,784	$41,509	$48,370	$13,889	$90,299	$22	$8,988	$203,077	$30,707	$13,100	$17,607	.....
Bingham & Garfield	87	214,755	2,565	220,015	19,915	16,964	1,099	31,465	52	2,959	72,454	147,561	8,088	139,473	$50,185
Cripple Creek & Colorado Springs	27	92,171	13,032	107,510	8,545	15,042	2,661	22,898	.....	3,155	52,303	55,207	7,603	47,605	7,330
New York, Susquehanna & Western	140	183,550	57,584	273,716	24,206	31,337	2,359	131,848	.....	5,422	194,877	78,839	14,100	64,738	—35,122
Norfolk & Western	2,086	4,663,028	461,751	5,293,541	619,528	849,044	66,815	1,221,551	9,038	78,172	2,830,308	2,463,232	175,000	2,288,116	921,558
Norfolk Southern	908	275,210	84,668	382,268	46,933	62,759	7,642	126,166	67	18,352	261,920	120,347	12,853	107,221	78,209
Northern Pacific	6,509	4,934,175	1,073,085	6,533,155	959,569	623,956	118,190	1,754,895	79,333	99,315	3,583,692	2,949,463	506,892	2,442,088	1,101,314
Northwestern Pacific	507	158,028	179,964	385,489	55,424	47,609	8,128	123,385	922	8,588	242,413	143,076	16,945	126,114	59,500
Oahu Ry. & Land Co.	114	79,637	20,149	110,082	9,034	7,948	660	26,027	.....	4,795	48,464	61,618	8,500	53,118	10,532
Oregon Short Line	2,259	1,487,997	380,116	2,013,605	221,873	225,681	33,493	446,807	27,947	59,782	1,015,583	998,022	131,600	866,389	440,220
Oregon-Washington Railroad & Nav. Co.	2,053	1,056,845	353,243	1,544,073	272,527	162,895	42,302	464,594	22,971	68,157	1,027,634	516,439	93,800	422,604	187,095
Panhandle & Santa Fe	670	381,890	77,906	477,676	82,907	71,929	3,922	114,628	.....	11,046	284,246	193,430	10,573	182,550	113,031
Pennsylvania Company	1,758	5,407,930	926,288	7,015,746	852,901	1,111,222	97,965	2,169,246	36,617	145,632	4,410,506	2,605,240	291,106	2,313,966	1,164,265
Pennsylvania Railroad	4,541	14,238,086	3,708,941	19,792,494	2,334,415	3,872,727	199,980	6,499,435	254,046	433,113	13,593,716	6,198,777	685,435	5,510,859	1,748,447
Pere Marquette	2,249	1,314,919	316,517	1,820,082	267,996	368,828	32,444	630,511	3,817	41,449	1,344,791	475,291	50,791	424,484	214,232
Philadelphia & Reading	1,120	3,954,094	583,458	4,868,838	396,932	740,748	50,382	1,594,777	15,211	78,954	2,870,769	1,998,069	100,213	1,897,159	655,654
Philadelphia, Baltimore & Washington	717	1,146,254	827,442	2,202,772	254,251	391,171	28,839	788,417	113	50,804	1,513,596	689,176	59,785	629,300	263,898
Pittsburgh & Lake Erie	225	1,773,532	161,587	2,070,424	167,515	287,816	14,166	447,223	3,850	34,436	955,006	1,115,418	58,700	1,056,718	428,660
Pittsburgh, Cincinnati, Chic. & St. Louis	1,489	3,079,409	718,320	4,305,753	623,148	860,685	70,933	1,417,813	27,133	107,171	3,106,260	1,199,493	180,610	1,018,809	468,934
Pittsburgh, Shawmut & Northern	294	184,994	9,739	197,238	43,224	57,664	1,492	62,136	.....	5,787	170,304	26,934	3,115	23,819	—15,072
Port Reading	21	115,963	.....	133,924	8,910	15,972	38	54,298	.....	121	79,339	54,585	10,000	44,585	—6,686
Richmond, Fredericksburg & Potomac	88	205,444	95,832	340,778	28,148	34,462	3,400	93,329	4,537	7,527	171,402	169,376	11,401	157,933	31,233
Rutland	468	228,073	90,723	363,104	32,371	59,167	10,754	123,158	1,051	7,019	233,520	129,584	17,215	112,369	33,494
St. Joseph & Grand Island	258	134,023	25,439	170,473	31,705	23,399	4,844	48,166	867	4,838	113,820	56,653	7,962	48,631	31,130
St. Louis Merchants' Bridge Terminal	9	.....	381	186,810	32,534	10,818	836	85,069	.....	6,101	135,358	51,453	7,600	43,853	10,458
St. Louis, San Francisco & Texas	244	54,979	21,001	83,057	18,765	12,788	2,521	38,627	.....	4,225	76,926	6,130	1,565	4,559	10,354
St. Louis Southwestern of Texas	810	216,095	67,009	313,405	67,931	79,218	13,913	140,721	1,633	17,620	309,741	3,664	16,930	—13,300	1,345
Southern Pacific	6,950	6,681,935	2,255,585	9,809,221	844,492	1,411,870	202,308	3,224,430	144,930	233,310	6,045,784	3,763,437	440,694	3,320,675	975,435
Spokane, Portland & Seattle	555	268,855	107,126	412,578	73,480	42,458	8,208	100,870	3,395	16,427	244,442	168,136	57,445	110,466	76,960
Staten Island Rapid Transit Co.	11	49,968	29,704	111,057	11,209	9,206	778	36,619	.....	2,317	60,129	50,928	5,500	45,428	—5,087
Terminal Railroad Ass'n of St. Louis	37	.....	266	279,945	43,131	17,375	928	81,451	.....	3,435	146,322	133,623	27,485	106,138	33,287
Texas & New Orleans	468	253,285	84,167	374,800	50,046	70,702	7,969	122,258	9,611	9,529	269,699	105,100	19,816	85,254	55,538
Ulster & Delaware	129	54,453	18,794	92,382	11,837	11,210	5,125	33,886	55	3,620	65,734	26,647	3,500	23,147	18,645
Union Pacific	3,622	3,821,651	857,927	5,176,348	793,087	575,677	108,256	1,204,290	78,502	139,441	2,869,162	2,307,185	210,700	2,095,555	930,122
Union Railroad of Baltimore	8	159,787	25,895	187,880	15,377	.....	.....	4,718	.....	2,036	22,131	165,749	5,868	159,881	57,342
Vandalia	917	729,326	197,068	1,047,925	134,110	207,913	26,112	388,949	10,826	27,011	794,921	253,004	36,957	216,018	96,578
Virginia & Southwestern	225	142,417	14,606	162,535	25,386	53,094	2,054	43,040	.....	4,237	127,811	34,724	7,517	27,206	5,605
Wabash	2,519	2,279,021	540,880	3,071,696	331,500	479,378	92,824	1,085,020	16,744	70,064	2,068,955	1,002,741	87,481	914,361	698,196
Washington Southern	36	67,493	54,529	159,178	17,954	22,400	1,334	43,275	2,020	3,479	90,462	68,716	4,532	64,173	29,773
West Jersey & Seashore	358	208,683	353,209	614,649	100,453	96,501	11,956	235,687	2,731	15,344	462,670	151,979	37,081	114,873	18,733
Western Pacific	941	502,737	83,219	620,338	108,521	68,344	21,116	199,422	9,640	17,548	424,590	195,748	31,671	164,053	68,865
Wheeling & Lake Erie	512	817,134	53,477	942,685	127,394	108,689	8,478	265,624	1,431	16,704	528,321	414,365	43,426	370,938	250,206
Yazoo & Mississippi Valley	1,382	904,044	190,073	1,144,674	171,969	197,524	19,532	350,070	2,005	32,485	771,732	372,942	52,000	320,827	98,583

Eleven Months of Fiscal Year 1916

Alabama & Vicksburg	143	$1,038,276	$377,388	$1,551,407	$188,760	$334,800	$40,938	$526,057	$22,961	$60,004	$1,173,351	$378,057	$96,330	$281,726	$206,027
Alabama Great Southern	309	3,724,864	1,033,583	5,129,272	481,280	1,171,915	144,101	1,490,740	33,110	98,672	3,418,075	1,711,197	181,357	1,529,728	683,182
Ann Arbor	294	1,800,581	491,940	2,442,455	216,934	352,326	53,251	880,872	4,980	124,454	1,632,817	809,638	153,810	653,397	180,817
Arizona Eastern	378	2,435,940	395,435	3,002,546	517,941	303,253	26,005	626,693	13,623	120,571	1,605,183	1,397,363	200,756	1,196,441	616,616
Atchison, Topeka & Santa Fe	8,626	68,398,847	25,126,330	102,227,571	13,778,246	15,717,251	2,129,168	27,567,665	.....	2,082,634	61,103,917	41,123,654	4,899,530	36,196,698	8,027,735
Atlanta & West Point	93	672,672	422,589	1,259,987	149,949	240,328	67,227	366,815	22,240	50,012	896,358	363,629	67,853	290,042	142,221
* Atlanta, Birmingham & Atlantic	640	956,882	189,829	1,241,050	206,463	237,254	69,251	473,805	129	44,340	1,031,241	209,809	65,500	144,309	.....
Atlantic & St. Lawrence	167	1,443,823	246,062	1,820,952	233,409	270,076	44,678	822,094	.....	48,223	1,418,480	402,471	126,555	275,904	87,810
Atlantic Coast Line	4,705	21,391,288	7,688,762	31,663,581	4,005,824	5,080,747	648,614	10,303,279	117,707	806,310	20,939,282	10,724,299	1,646,000	9,064,635	2,438,382
Baltimore & Ohio	4,535	80,400,912	13,496,239	101,323,262	12,364,745	21,596,464	1,768,438	33,562,015	612,298	2,285,434	72,178,857	29,144,405	3,302,916	25,807,371	4,134,520
Baltimore & Ohio Chicago Terminal	79	.....	6,155	1,621,849	174,963	214,959	10,191	752,102	17,176	89,498	1,226,761	395,088	210,278	183,278	—32,295
Baltimore, Chesapeake & Atlantic	88	617,668	353,308	1,017,992	79,651	290,540	15,036	548,657	.....	34,711	968,576	49,416	24,642	24,738	—78,365
Bangor & Aroostook	632	2,690,560	594,133	3,476,944	502,830	536,383	32,749	939,507	33,518	126,788	2,171,130	1,305,814	143,450	1,162,328	28,830
Belt Ry. Co. of Chicago	31	.....	.....	2,666,987	190,179	341,603	11,392	1,155,920	.....	66,459	1,765,554	901,433	138,186	763,247	—486,720
Bessemer & Lake Erie	255	9,112,288	341,045	9,643,801	824,770	1,865,443	104,638	2,249,945	.....	161,399	5,075,117	4,568,684	210,665	4,357,993	1,385,451
Bingham & Garfield	27	1,860,429	35,370	1,908,112	183,476	180,688	11,492	248,149	1,029	26,683	651,517	1,256,594	53,982	1,202,612	557,773
Boston & Maine	2,302	29,107,470	13,767,023	47,383,220	5,457,842	5,998,753	369,783	19,955,069	183,089	1,128,552	33,093,088	14,290,132	1,814,534	12,475,598	4,743,683
Buffalo & Susquehanna R. R. Corporation	253	1,445,662	74,142	1,544,376	224,598	398,851	12,221	424,097	.....	60,081	1,119,849	424,527	28,600	395,925	237,287
Buffalo, Rochester & Pittsburgh	586	9,473,635	1,044,457	10,914,655	1,489,343	2,490,995	130,588	3,488,788	13,953	241,585	7,855,252	3,059,404	230,000	2,829,277	777,517
Canadian Pacific Lines in Maine	233	1,567,501	192,158	1,870,346	200,888	224,411	57,965	751,931	.....	41,017	1,276,211	594,135	96,000	498,135	425,999
Carolina, Clinchfield & Ohio	283	2,412,591	197,472	2,665,615	267,593	343,928	122,883	479,482	.....	110,060	1,312,858	1,352,757	142,500	1,210,127	426,227
Carolina, Clinchfield & Ohio of S. C.	18	138,590	14,480	157,278	14,688	966	21,203	27,632	.....	8,479	72,617	84,662	7,500	77,102	26,736
Central of Georgia	1,924	7,655,988	2,786,722	11,608,073	1,584,043	1,973,194	395,223	3,736,541	16,025	425,038	8,119,504	3,488,569	584,965	2,891,323	409,684
Central of New Jersey	681	22,952,708	5,609,860	30,496,781	2,476,973	5,034,864	330,910	10,677,863	148,452	636,843	19,302,388	11,194,393	1,677,389	9,516,501	1,937,892
Central New England	304	3,817,669	389,677	4,406,652	473,110	385,858	13,342	1,399,133	.....	52,455	2,323,016	2,083,636	157,800	1,925,648	692,603
Central Vermont	411	2,759,907	817,426	3,905,713	417,999	605,142	92,817	1,723,581	22,945	86,688	2,949,173	956,540	171,740	784,769	295,927
Charleston & Western Carolina	343	1,324,205	308,692	1,727,215	291,882	220,890	35,955	559,991	.....	52,145	1,160,488	566,727	55,000	511,364	204,065
Chesapeake & Ohio Lines	2,374	35,783,058	5,447,893	44,017,188	5,080,677	9,770,869	590,164	12,653,054	259,748	870,387	29,206,382	14,810,806	1,444,992	13,345,917	3,875,608
Chicago & Alton	1,052	10,179,704	3,515,579	14,853,910	1,669,379	3,210,953	388,317	5,006,901	106,800	337,901	10,664,911	4,188,999	506,485	3,693,215	1,384,275

* Five months ended May 31.

REVENUES AND EXPENSES OF RAILWAYS

ELEVEN MONTHS OF FISCAL YEAR 1916—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses							Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.				
Chicago & Eastern Illinois	1,136	$11,520,317	$2,649,065	$15,379,347	$2,092,569	$3,623,510	$276,965	$5,288,109	$87,570	$416,459	$11,760,295	$3,619,052	$640,957	$2,973,380	$1,020,790
Chicago & Erie	270	6,046,693	525,129	7,130,265	644,040	714,289	194,004	2,668,997	23,831	157,637	4,392,421	2,737,844	242,633	2,495,211	1,256,723
Chicago & North Western	8,108	55,021,390	19,398,078	83,195,221	10,424,747	13,418,027	1,194,032	29,459,781	601,020	1,714,312	56,619,507	26,575,714	4,295,000	22,268,089	4,243,060
Chicago, Burlington & Quincy	9,369	66,060,260	19,271,534	94,075,779	10,648,167	14,063,718	1,405,472	27,507,843	852,681	1,833,384	56,311,264	37,764,514	4,022,986	33,741,528	8,862,307
Chicago Great Western	1,496	9,656,726	2,970,952	13,805,685	1,817,602	2,328,285	497,862	4,871,976	94,055	373,139	9,967,728	3,837,957	503,788	3,324,399	767,280
Chicago, Indianapolis & Louisville	622	4,791,100	1,691,170	7,025,125	762,627	1,145,295	218,264	2,349,364	3,435	198,588	4,672,160	2,352,965	327,602	2,023,197	613,724
Chicago Junction	13	.....	.....	2,125,517	228,989	197,629	12,369	1,161,364	.....	60,297	1,660,649	464,869	34,779	430,078	153,355
Chicago, Milwaukee & St. Paul	10,210	69,786,232	17,005,241	96,482,738	9,682,780	15,174,110	1,707,936	34,582,274	684,028	1,746,959	62,343,979	34,138,759	4,771,972	29,334,592	7,471,314
Chicago, Peoria & St. Louis	255	1,257,460	263,255	1,609,447	219,494	322,290	62,623	651,456	.....	59,536	1,315,399	294,048	55,698	238,350	115,521
Chicago, Rock Island & Gulf	477	2,114,233	568,750	2,914,385	449,582	379,591	105,605	990,770	17,157	89,726	2,032,188	882,196	106,703	774,703	164,035
Chicago, Rock Island & Pacific	7,559	44,726,983	16,459,959	66,202,624	9,260,878	11,466,117	1,496,146	24,053,384	483,105	1,690,567	48,372,910	17,829,714	3,254,278	14,565,506	2,187,002
Chicago, St. Paul, Minneapolis & Omaha	1,753	11,885,131	4,683,542	17,908,018	2,064,337	2,267,034	322,735	6,655,752	170,107	431,448	11,895,161	6,012,857	936,541	5,071,527	717,601
Chicago, Terre Haute & Southeastern	373	2,087,841	179,137	2,325,725	334,285	531,028	43,725	689,792	11,132	93,443	1,703,217	622,508	120,517	501,709	128,796
Cincinnati, Hamilton & Dayton	622	7,390,719	1,226,608	9,618,390	1,625,231	1,941,751	176,804	3,421,134	36,458	230,748	7,415,898	2,202,492	346,797	1,852,739	1,183,538
‡ Cincinnati, Indianapolis & Western	322	752,449	240,100	1,090,798	130,955	149,770	32,793	491,349	2,174	42,184	847,265	243,533	56,935	186,598	.....
Cincinnati, New Orleans & Texas Pacific	337	7,872,298	1,623,019	10,089,032	1,006,831	2,441,221	277,728	2,925,103	15,990	231,114	6,948,709	3,140,323	348,000	2,791,488	757,924
Cincinnati Northern	246	1,399,227	189,249	1,654,836	273,094	272,790	31,877	531,646	.....	33,424	1,142,831	512,005	62,371	449,560	149,575
Cleveland, Cincinnati, Chic. & St. Louis	2,385	27,992,308	8,195,240	39,632,491	4,066,892	7,400,866	852,069	13,280,170	259,194	800,719	26,581,130	13,051,361	1,421,131	11,621,791	4,829,034
Colorado Midland	338	1,119,246	160,255	1,395,478	229,590	339,171	80,005	596,394	11,576	60,144	1,316,881	78,597	91,010	—12,413	—80,944
Colorado & Southern	1,102	6,152,914	1,240,861	7,949,297	1,002,879	1,546,493	110,468	2,223,915	42,629	247,028	5,173,412	2,775,885	384,400	2,391,156	792,116
Cripple Creek & Colorado Springs	87	1,053,100	218,149	1,292,602	149,794	144,569	38,470	310,334	.....	37,492	680,658	611,943	61,687	550,256	122,828
Cumberland Valley	164	2,450,133	600,651	3,203,965	333,235	307,296	46,406	940,940	10,329	96,142	1,727,143	1,476,822	65,070	1,411,714	692,626
Delaware & Hudson Co.—R. R. Dept	857	19,772,076	2,610,424	23,691,065	1,936,719	3,750,122	290,235	7,926,024	200,543	774,410	14,857,769	8,833,295	599,808	8,231,295	1,558,718
Delaware, Lackawanna & Western	955	32,823,963	7,715,162	44,921,807	4,013,842	6,543,348	803,343	14,184,709	335,564	874,650	26,711,538	18,210,270	2,008,234	16,198,823	3,790,741
Denver & Rio Grande	2,577	16,776,103	4,399,734	22,828,350	2,296,284	3,822,505	446,510	6,020,099	389,030	550,608	13,525,036	9,303,314	997,000	8,304,915	2,440,559
Denver & Salt Lake	255	1,352,954	290,607	1,721,018	206,756	350,496	21,871	615,521	.....	51,036	1,245,569	475,449	82,486	392,799	—15,568
Detroit & Mackinac	393	713,526	283,806	1,070,680	118,517	186,350	22,842	363,454	892	29,571	721,266	349,414	89,482	256,632	69,143
Detroit & Toledo Shore Line	81	1,580,576	.....	1,589,948	127,357	91,270	17,027	411,660	.....	30,284	677,599	912,349	73,357	838,992	228,979
Detroit, Grand Haven & Milwaukee	191	2,040,001	525,439	2,951,816	309,708	381,028	57,771	1,360,366	7,730	47,787	2,163,939	787,876	41,470	745,425	526,114
Detroit, Toledo & Ironton	341	1,736,274	148,513	2,019,260	213,355	263,329	45,191	881,690	.....	68,577	1,472,141	547,119	63,500	483,585	444,202
Duluth & Iron Range	288	5,058,671	225,290	5,450,341	629,182	791,396	15,117	1,347,344	15,252	115,782	2,905,979	2,544,362	292,046	2,251,227	874,772
Duluth, Missabe & Northern	399	8,763,055	302,516	9,480,091	1,084,527	1,229,535	27,262	1,642,189	58,875	144,376	4,186,764	5,293,327	525,665	4,767,662	2,616,793
Duluth, South Shore & Atlantic	628	2,101,510	794,741	3,163,960	503,926	394,120	81,703	1,123,262	39,926	102,058	2,244,994	918,966	228,868	689,848	398,375
Duluth, Winnipeg & Pacific	187	1,304,204	206,231	1,558,185	144,680	163,369	18,683	572,783	7,300	67,220	974,037	584,148	77,985	506,164	286,222
El Paso & Southwestern Co	1,027	7,618,738	1,482,527	9,645,637	1,241,621	1,249,578	201,158	2,400,832	70,077	317,658	5,480,798	4,164,839	425,656	3,738,874	1,389,263
Elgin, Joliet & Eastern	798	11,403,739	106	12,170,820	923,758	2,220,062	74,187	3,356,150	.....	240,481	6,813,158	5,357,662	419,258	4,937,534	2,483,170
Erie	1,988	45,432,527	8,333,097	59,267,372	4,573,036	10,251,365	997,443	21,092,666	373,400	1,234,537	38,453,628	20,813,744	1,910,735	18,864,202	8,485,894
Florida East Coast	745	3,872,683	1,915,823	6,639,376	735,161	718,446	99,583	1,871,951	39,040	215,851	3,652,552	2,986,824	287,888	2,698,447	927,240
Fort Worth & Denver City	454	3,740,420	1,393,983	5,410,460	635,641	878,901	70,419	1,556,224	28,718	172,548	3,342,450	2,068,010	184,612	1,883,397	608,694
Galveston, Harrisburg & San Antonio	1,351	8,205,630	2,808,736	11,722,254	1,799,266	1,633,339	333,773	4,347,631	116,452	353,291	8,553,912	3,168,342	547,945	2,613,657	1,291,215
Galveston Wharf	12	.....	.....	1,254,218	39,921	24,518	4,158	346,371	394,184	4,239	813,392	440,827	112,090	328,737	—339,531
Georgia	307	1,948,876	710,353	2,883,899	261,637	446,956	138,581	1,133,098	999	84,647	2,064,659	819,240	129,687	688,567	310,802
Georgia, Southern & Florida	395	1,351,908	606,387	2,249,673	250,756	407,315	77,130	831,651	3,066	102,039	1,672,679	576,994	124,846	449,991	223,572
Grand Rapids & Indiana	575	3,313,027	1,431,875	5,151,251	582,228	867,092	119,353	2,035,856	14,766	163,488	3,782,782	1,368,469	248,557	1,118,031	233,496
Grand Trunk Western	347	6,043,930	1,445,847	8,001,944	762,371	1,231,491	171,039	2,833,109	58,890	147,046	5,203,945	2,797,999	362,670	2,434,377	1,909,409
Great Northern	8,102	55,015,193	12,353,817	74,100,015	8,183,900	8,102,515	1,050,906	20,469,672	793,150	1,223,426	39,642,165	34,457,850	4,622,268	29,831,396	5,814,666
Gulf & Ship Island	308	1,362,150	320,842	1,813,491	160,891	283,410	33,427	448,003	3,195	82,445	1,011,371	802,120	76,181	725,572	343,277
Gulf, Colorado & Santa Fe	1,938	10,702,395	2,768,791	14,325,602	2,751,522	2,165,378	331,850	6,044,852	.....	439,833	11,677,248	2,648,354	659,002	1,984,814	—2,094,163
Hocking Valley	350	5,354,552	783,743	6,625,572	662,996	1,509,907	91,400	1,930,868	.....	158,130	4,353,300	2,272,272	440,400	1,831,400	418,447
Houston & Texas Central	895	4,249,868	1,299,694	6,018,561	938,993	882,069	175,315	2,082,515	62,042	206,008	4,340,122	1,678,439	330,888	1,345,202	330,595
Houston, East & West Texas	191	984,004	311,160	1,381,738	258,101	198,003	22,640	450,341	7,543	35,249	970,542	411,196	48,067	362,264	121,641
Illinois Central	4,767	45,995,654	12,352,585	63,171,828	8,859,652	15,233,645	1,143,132	20,078,078	339,878	1,603,897	47,156,995	16,014,833	3,326,500	12,665,689	2,267,766
Indiana Harbor Belt	110	.....	.....	3,758,261	400,697	404,856	31,409	1,478,047	.....	88,556	2,403,566	1,354,695	84,017	1,269,391	428,376
International & Great Northern	1,159	6,406,834	1,658,226	8,728,286	1,322,178	1,443,546	232,075	3,502,424	42,459	317,557	6,701,477	2,026,809	388,678	1,636,173	820,319
Kanawha & Michigan	177	2,890,577	340,354	3,313,758	436,359	696,163	33,276	836,502	150	74,695	2,077,145	1,236,613	147,935	1,088,311	468,903
Kansas City, Mexico & Orient	738	1,919,244	357,499	2,403,680	579,450	493,431	96,947	997,787	.....	113,724	2,281,339	122,340	130,208	7,891	—232,799
Kansas City Southern	837	7,407,729	1,377,207	9,672,486	1,042,161	1,139,235	301,251	3,028,494	.....	377,561	5,799,779	3,872,707	513,614	3,355,073	515,950
Lake Erie & Western	900	5,344,520	681,542	6,335,871	715,514	1,137,912	141,117	2,094,735	.....	136,667	4,225,944	2,109,927	258,803	1,850,204	937,391
Lehigh & Hudson River	97	1,623,530	80,889	1,916,605	192,559	246,558	16,289	627,483	.....	45,986	1,128,875	787,730	51,800	735,930	217,218
Lehigh & New England	296	2,851,840	13,458	3,031,318	405,542	346,683	21,389	769,524	.....	64,204	1,606,789	1,424,529	79,540	1,344,795	382,741
Lehigh Valley	1,442	36,531,955	3,875,691	43,153,826	4,351,507	8,445,966	906,879	15,482,527	138,467	855,575	30,153,698	13,000.128	1,566,500	11,425,354	1,526,246
Long Island	397	3,808,675	7,306,300	12,799,651	1,476,315	1,408,362	123,907	5,203,736	67,372	353,519	8,625,274	4,174,377	829,747	3,339,704	424,615
Louisiana & Arkansas	279	1,302,471	169,003	1,516,182	271,727	239,196	36,290	390,669	.....	46,462	984,345	531,837	84,642	446,983	—4,187
Louisiana Ry. & Navigation Co	351	1,579,455	309,621	2,016,219	290,073	303,180	68,485	675,336	.....	57,583	1,394,657	621,562	104,500	516,917	175,886
Louisiana Western	208	1,516,055	589,356	2,255,490	290,636	356,092	78,368	583,940	19,990	66,959	1,395,848	859,642	105,639	753,349	261,228
Louisville & Nashville	5,038	40,970,862	10,445,118	55,241,080	7,585,206	9,985,384	1,344,040	16,179,836	252,809	1,179.068	36,404,882	18,836,198	2,119,947	16,699,516	7,496,141
Louisville, Henderson & St. Louis	200	1,020,639	375,872	1,478,664	335,262	176,102	55,528	442,185	.....	35,331	1,044,407	434,257	41,800	392,083	138,730
Maine Central	1,220	7,064,783	3,041,040	10,895,488	1,487,522	1,563,242	121,033	3,970,388	39,525	316,662	7,497,043	3,398,445	568,376	2,829,708	521,230
Michigan Central	1,803	24,520,171	9,053,384	37,987,834	4,402,927	5,708,202	691,891	13,218,136	569,072	718,489	25,308,716	12,679,117	1,493,936	11,178,947	4,844,670
Midland Valley	380	1,226,653	385,514	1,698,303	302,892	284,646	26,827	535,354	.....	67,461	1,216,540	481,763	74,285	406,948	192,667
Minneapolis, St. Paul & S. S. Marie	4,229	24,044,204	5,779,991	32,081,821	2,916,846	3,846,499	575,588	9,360,715	171,240	641,315	17,480,657	14,601,164	1,407,265	13,193,899	4,981,375
Minneapolis & St. Louis	1,646	7,559,606	1,775,084	9,888,756	1,091,483	1,380,026	193,417	3,601,801	931	244,674	6,512,332	3,376,424	416,584	2,956,409	433,787
Missouri & North Arkansas	365	704,717	317,950	1,100,460	299,576	232,619	33,137	398,862	.....	60,693	1,024,887	75,573	63,754	111,110	213,215
Missouri, Kansas & Texas	3,865	20,058,591	7,543,168	29,841,460	6,301,323	5,213,913	633,786	10,311,209	183,700	1,012,965	23,613,295	6,228,165	1,520,977	4,699,576	—3,527,466
Missouri, Oklahoma & Gulf	334	1,017,074	226,583	1,298,206	353,476	266,453	48,344	563,070	1,240	83,233	1,311,784	—13,578	72,164	—86,400	19,640

‡ Figures shown here are for 6 months ending May 31.

REVENUES AND EXPENSES OF RAILWAYS

ELEVEN MONTHS OF FISCAL YEAR 1916—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Missouri, Oklahoma & Gulf of Texas	125	$194,796	$4,676	$201,788	$36,215	$27,806	$19,946	$104,443	.....	$15,378	$203,788	—$2,000	$2,405	—$4,405	—$5,373
Missouri Pacific	3,931	22,014,787	4,574,226	28,964,551	4,414,947	6,506,417	742,770	10,268,812	$96,017	92,200	2,449,091	18,272	164,450	5,022,894	226,846
Mobile & Ohio	1,122	9,135,970	1,118,791	10,847,027	1,100,217	2,300,834	391,442	3,754,520	25,706	342,997	7,897,788	2,949,240	366,173	2,580,575	206,145
Monongahela	108	1,635.520	66,248	1,728,129	224,502	148,298	9,633	367,817	.....	38,709	788,959	939,170	54,855	884,315	.....
Morgan's La. & Texas R. R. & S. S. Co.	405	2,930,638	916,577	4,192,501	636,845	701,740	130,634	1,475,030	25,062	127,364	3,095,316	1,097,185	241,530	853,661	112,999
Nashville, Chattanooga & St. Louis	1,231	8,295,754	2,442,347	11,667,587	1,368,820	2,154,285	556,266	4,103,919	110,639	398,889	8,685,632	2,981,955	290,000	2,689,198	1,321,165
Nevada Northern	165	1,530,152	123,391	1,700,473	191,748	150,882	6,902	310,376	808	50,114	710,830	989,643	74,401	915,223	535,560
New Orleans & Great Northern	285	1,228,787	292,577	1,688,470	205,681	238,276	28,947	461,392	1,949	69,298	1,005,544	682,926	37,862	644,719	182,835
New Orleans & North Eastern	204	2,573,468	545,527	3,469,698	375,917	603,097	114,234	1,056,527	63,338	126,958	2,339,948	1,127,751	166,698	963,053	369,479
New Orleans, Mobile & Chicago	402	1,513,694	265,503	1,865,529	281,871	295,342	46,573	572,821	60	76,406	1,272,574	592,955	73,972	517,941	172,864
New Orleans, Texas & Mexico	286	1,204,071	255,640	1,544,492	300,473	246,667	45,562	528,817	.....	105,858	1,227,377	317,114	16,593	299,957	139,075
New York Central Railroad	6,093	120,231,403	43,723,529	190,116,033	18,570,776	33,043,101	2,639,244	59,878,420	2,549,674	4,079,838	120,761,054	69,354,979	8,044,328	61,291,999	.....
New York, Chicago & St. Louis	570	11,492,300	1,201,249	13,192,044	986,849	2,210,055	491,970	5,115,985	42,706	236,325	9,083,890	4,108,154	458,440	3,643,656	2,058,126
New York, New Haven & Hartford	2,005	34,026,711	26,980,763	69,231,325	7,991,485	9,885,960	408,157	25,757,593	752,666	1,587,223	46,327,005	22,904,321	2,659,000	20,240,396	4,389,745
New York, Ontario & Western	568	5,564,779	1,473,430	8,216,234	995,079	1,331,846	83,109	3,189,210	.....	177,401	5,774,131	2,442,103	235,021	2,205,539	249,316
New York, Philadelphia & Norfolk	112	3,565,200	400,224	4,258,167	367,336	833,490	52,894	1,559,965	44,310	122,564	2,977,917	1,280,250	116,562	1,162,412	603,781
New York, Susquehanna & Western	140	2,341,505	575,912	3,270,934	243,076	349,488	21,268	1,541,804	.....	63,818	2,217,439	1,053,495	147,757	905,115	50,526
Norfolk & Western	2,086	45,245,806	5,308,530	52,316,701	5,974,596	9,193,207	638,423	12,918,263	95,991	812,687	29,369,480	22,947,220	1,890,000	21,054,133	9,336,652
Norfolk Southern	908	2,949,529	967,652	4,175,712	503,063	608,695	82,694	1,419,580	1,093	193,869	2,808,993	1,366,719	137,869	1,225,522	522,694
Northern Pacific	6,509	51,030,379	12,433,301	69,274,654	7,836,717	6,788,104	1,061,498	19,149,638	895,795	1,034,041	36,294,507	32,980,146	4,534,685	28,440,612	8,994,593
Northwestern Pacific	507	1,561,388	1,866,279	3,864,606	611,450	468,907	60,018	1,318,682	3,255	87,909	2,531,898	1,332,708	187,862	1,144,420	495,189
Oahu Ry. & Land Co.	114	853,508	230,922	1,167,113	108,819	91,107	7,677	265,177	.....	56,700	529,480	637,633	93,611	544,022	—6,114
Oregon Short Line	2,259	16,845,399	4,288,481	22,775,327	2,660,511	2,648,592	381,224	5,091,270	327,022	612,587	11,723,443	11,051,884	1,480,635	9,567,093	3,315,206
Oregon-Washington Railroad & Nav. Co.	2,053	10,500,042	3,984,940	15,833,003	2,573,860	1,775,641	487,168	5,016,767	191,217	678,671	10,674,172	5,158,832	1,098,703	4,058,661	241,411
Panhandle & Santa Fe	670	3,870,556	892,476	4,985,279	906,372	740,492	46,024	1,185,060	.....	118,754	2,991,941	1,993,337	130,613	1,861,583	1,043,102
Pennsylvania Company	1,758	48,561,608	9,999,426	64,442,945	8,192,477	10,583,947	872,036	20,613,171	358,929	1,439,637	42,050,132	22,392,813	3,114,794	19,275,383	10,497,085
Pennsylvania Railroad	4,541	145,014,759	38,103,079	200,729,165	24,828,176	38,562,519	2,146,694	68,887,027	2,611,404	4,725,564	141,761,384	58,967,781	7,161,480	51,761,244	19,902,340
Pere Marquette	2,249	13,868,409	3,769,344	19,428,690	1,750,635	3,909,466	340,860	6,695,056	43,472	451,873	13,186,673	6,242,017	581,465	5,652,819	1,811,627
Philadelphia & Reading	1,120	43,659,803	6,157,068	52,454,241	3,663,365	8,145,611	516,169	17,319,063	140,866	850,275	30,616,108	21,838,133	1,103,026	20,728,987	7,760,691
Philadelphia, Baltimore & Washington	717	11,071,627	8,429,389	21,537,727	2,857,308	3,811,252	292,683	8,127,219	1,133	554,639	15,644,235	5,893,492	609,419	5,281,096	2,463,313
Pittsburgh & Lake Erie	225	17,902,879	1,630,879	20,725,754	1,590,080	2,882,449	148,792	4,396,336	38,079	326,771	9,382,507	11,343,247	590,422	10,752,782	6,656,877
Pittsburgh Cincinnati, Chic. & St. Louis	1,489	30,439,745	8,028,422	43,253,229	6,022,221	8,141,643	722,085	14,577,555	288,251	1,027,221	30,777,005	12,476,224	1,857,843	10,615,940	3,966,922
Pittsburgh, Shawmut & Northern	294	2,072,540	104,099	2,206,530	336,094	547,410	17,351	674,409	.....	53,069	1,628,333	578,197	21,833	556,364	240,955
Port Reading	21	1,453,982	.....	1,659,749	88,757	135,715	422	710,733	.....	1,989	937,609	722,140	110,000	612,140	36,310
Richmond, Fredericksburg & Potomac	88	1,582,720	1,030,206	3,012,349	226,257	334,509	38,215	959,858	40,809	83,523	1,683,172	1,329,178	96,738	1,232,133	376,196
Rutland	468	2,005,627	1,104,576	3,545,477	409,000	585,890	101,305	1,235,390	11,409	67,401	2,410,395	1,135,082	187,680	947,386	291,757
St. Joseph & Grand Island	258	1,285,762	284,648	1,668,880	332,314	248,349	48,713	551,049	1,328	60,222	1,241,974	426,906	89,481	336,948	122,474
St. Louis & San Francisco	4,751	29,603,623	10,050,618	42,361,609	6,362,277	6,948,789	724,282	13,336,743	.....	1,085,829	28,134,206	14,227,403	1,920,288	12,289,092	1,769,103
St. Louis, Brownsville & Mexico	548	1,516,644	689,823	2,393,165	419,986	330,189	64,196	799,451	.....	113,801	1,692,649	700,516	95,389	601,386	98,256
St. Louis, Iron Mountain & Southern	3,555	22,551,573	5,289,635	30,059,215	5,235,071	6,087,341	704,549	8,531,706	97,997	676,958	21,278,109	8,781,106	1,270,638	7,481,133	378,592
St. Louis Merchants' Bridge Terminal	9	.....	2,990	2,066,628	282,669	100,300	8,780	925,543	.....	71,889	1,389,180	677,448	95,998	581,440	198,451
St. Louis, San Francisco & Texas	244	671,144	253,741	1,021,868	232,740	173,657	23,113	462,316	.....	49,205	941,030	80,838	19,282	61,031	38,710
St. Louis Southwestern	943	5,745,506	1,205,018	7,400,849	608,393	1,160,758	320,941	1,812,335	34,362	277,282	4,209,099	3,191,750	345,719	2,843,687	1,038,430
St. Louis Southwestern of Texas	810	2,728,852	827,047	3,864,170	680,609	875,453	150,945	1,643,037	11,283	199,308	3,463,315	400,855	194,518	205,534	484,257
San Antonio & Aransas Pass	724	2,468,818	870,295	3,589,944	729,440	593,030	73,337	1,613,398	.....	135,079	3,142,341	447,603	174,104	272,866	246,597
San Pedro, Los Angeles & Salt Lake	1,154	6,345,157	2,836,303	10,162,211	969,489	1,454,675	357,423	2,896,257	237,740	194,945	6,087,540	4,074,672	529,616	3,544,070	2,474,736
†Seaboard	3,449	9,331,593	2,733,063	13,430,417	1,516,647	1,831,289	422,807	4,398,204	88,454	385,632	8,642,896	4,787,521	597,589	4,185,283	.....
Southern	7,027	43,362,245	15,161,931	64,319,551	7,574,051	10,225,439	1,745,884	20,898,652	364,845	1,866,118	42,285,637	22,033,914	2,666,578	19,337,750	7,077,131
Southern Pacific	6,950	65,901,457	29,716,318	105,374,861	11,540,033	15,203,071	2,010,805	32,557,384	1,885,675	2,554,201	65,571,068	39,803,792	4,619,909	35,167,754	7,721,803
Spokane, Portland & Seattle	555	2,756,474	1,319,373	4,512,770	522,458	412,729	87,852	1,054,404	39,157	151,287	2,263,666	2,249,104	599,535	1,648,408	462,747
Staten Island Rapid Transit Co	11	519,206	283,956	1,128,983	112,601	69,891	7,966	458,749	.....	27,148	676,354	452,629	57,000	395,627	—41,174
Tennessee Central	294	1,048,465	344,523	1,479,186	289,613	207,934	63,656	542,999	.....	73,960	1,178,049	301,137	51,751	248,780	110,520
Terminal Railroad Ass'n of St. Louis	37	.....	2,776	2,857,683	338,131	167,172	9,954	914,736	.....	51,206	1,481,200	1,376,483	297,672	1,078,802	195,998
Texas & New Orleans	468	2,751,377	959,155	4,115,444	648,273	856,580	88,976	1,414,451	109,272	109,931	3,225,771	889,673	222,383	664,917	484,468
Texas & Pacific	1,944	12,440,129	3,920,232	17,698,022	1,927,180	2,763,130	420,121	6,896,508	148,654	562,008	12,697,615	5,000,406	848,438	4,147,641	948,128
Toledo & Ohio Central	436	4,058,669	544,440	4,896,669	625,710	1,044,733	77,401	1,740,788	19,212	108,608	3,616,453	1,280,216	263,227	1,016,377	271,694
Toledo, Peoria & Western	248	634,581	410,002	1,115,770	170,961	318,305	25,030	412,545	.....	40,964	967,806	147,964	67,500	80,464	103,087
Toledo, St. Louis & Western	451	4,508.070	339,917	5,146,789	610,539	751,294	178,543	1,696,114	.....	91,910	3,326,934	1,819,856	200,942	161,868	791,791
Ulster & Delaware	129	483,786	267,042	932,533	96,473	109,324	17,906	375,254	674	35,355	634,985	297,548	38,500	258,680	182,190
Union Pacific	3,622	41,495,967	9,824,793	56,758,614	7,135,978	7,039,510	1,196,655	13,538,709	890,525	1,349,952	31,053,945	25,704,669	2,292,631	23,403,637	6,127,497
Union Railroad of Baltimore	8	1,356,429	254,191	1,631,205	166,891	.....	.....	52,821	.....	23,344	243,057	1,388,148	59,082	1,329,065	143,350
Union R. R. of Pennsylvania	31	.....	.....	4,932,210	403,613	1,078,105	1,248	1,844,366	.....	48,350	3,375,436	1,556,775	80,106	1,476,668	1,276,331
Vandalia	917	7,944,019	2,215,384	11,445,343	1,667,249	2,179,948	259,035	4,047,951	111,301	276,467	8,541,951	2,903,392	409,224	2,492,789	743,671
Vicksburg, Shreveport & Pacific	171	925,273	425,125	1,508,933	235,057	273,617	39,167	466,510	23,092	56,902	1,093,953	414,981	93,991	320,990	281,948
Virginia & Southwestern	225	1,581,795	154,848	1,792,091	277,612	441,355	23,699	489,224	.....	44,648	1,276,537	515,554	77,910	437,644	91,600
Virginian	505	5,941,109	400,175	6,755,798	682,791	1,133,301	59,488	1,339,065	140,669	174,571	3,514,155	3,241,643	259,200	2,982,332	972,297
Wabash	2,519	23,358,147	5,785,417	31,712,826	3,533,602	4,887,023	946,780	11,499,459	168,600	719,882	21,724,609	9,988,216	933,599	9,048,275	4,245,626
Washington Southern	36	528,968	586,985	1,462,679	164,388	175,556	15,191	454,414	18,168	37,102	864,818	597,862	43,627	554,203	278,631
West Jersey & Seashore	358	2,351,807	3,957,403	6,857,444	1,155,901	1,007,666	130,393	2,675,728	29,539	171,147	5,170,375	1,687,069	430,047	1,256,305	463,912
Western Maryland	689	8,554,494	866,246	9,937,207	1,166,728	1,578,168	236,592	3,180,370	75,617	222,678	6,453,246	3,483,961	313,500	3,170,461	1,319,610
Western Pacific	941	4,732,292	1,585,282	6,793,665	992,852	684,194	238,071	2,123,813	155,345	198,394	4,392,669	2,400,995	317,464	2,082,102	1,345,294
Western Ry. of Alabama	133	702,693	374,927	1,209,822	194,026	240,207	65,354	338,307	19,650	50.343	906,545	303,277	60,129	237,618	105,329
Wheeling & Lake Erie	512	7,038,824	574,017	8,226,282	1,031,931	1,266,950	92,206	2,449,091	18,272	164,450	5,022,894	3,203,388	408,027	2,795,291	1,965,989
Yazoo & Mississippi Valley	1,382	9,612,914	2,205,078	12,417,545	1,832,209	1,936,025	204,770	3,902,376	17.061	316,762	8,204,160	4,123,386	558,000	3,652,838	977,347

†Figures shown are for 6 months ended May 31, 1916.

Railroads and the Clayton Act

E. P. Ripley, president of the Atchison, Topeka & Santa Fe, has written a letter to the Chicago Herald, which was published on July 24, referring to an editorial regarding the effect of the provisions of that part of the Clayton law that applies to the purchase of railroad supplies. Mr. Ripley says:

"Possibly in the past there may have been instances where those in control of railroads have lined their own pockets by buying supplies from concerns in which they had a personal interest, but such cases were rare—certainly not more frequent than stealing in other walks of life.

"The Clayton act, while doubtless well meant, is an example of the unintelligent attempts at regulation of which the railroads complain. It is unworkable as a practical matter, for reasons which it would take too long to explain. What the railroads are asking is that they be given a chance to show how unworkable and unreasonable the law is; or, at least, that the taking effect be postponed long enough to enable them to conform to it without too much loss. Just to show you what it means I may say that compliance with the law under existing conditions would probably cost this company $100,000 annually, plus all manner of inconvenience and with absolutely no benefit either to us or anybody else."

Traveling Engineers' Association

The twenty-fourth annual convention of the Traveling Engineers' Association will be held at the Hotel Sherman, Chicago, commencing September 5, 1916, and continuing four days.

A brief program of the meeting follows:

Tuesday, September 5. Morning session, 10:30 a. m.—Opening exercises and consideration of subject: "What effect does the mechanical placing of fuel in fireboxes and lubricating of locomotives have on the cost of operation." W. L. Robinson (B. & O.), chairman. Afternoon session, 1:30 p. m.—Continuation of the same subject.

Wednesday, September 6. Morning session, 9 a. m.—"The advantages of superheaters, brick arches and other modern appliances on large engines, especially those of the Mallet type." J. E. Ingling (Erie), chairman. Afternoon session, 1:30 p. m.—Committee on subjects for discussion at the 1917 meeting. B. J. Feeny (I. C.), chairman. Evening—The entire evening will be devoted to studying and examining the exhibits.

Thursday, September 7. Morning session, 9 a. m.—"Difficulties accompanying the prevention of dense black smoke and its relation to cost of fuel and locomotive repairs." Martin Whelan (C. C. C. & St. L.), chairman. Afternoon session, 1:30 p. m.—"Recommended practice in the makeup and handling of modern freight trains on both level and steep grades, to avoid damage to draft rigging." L. R. Pyle (Soo), chairman.

Friday, September 8. Morning session, 9 a. m.—"Assignment of power from standpoint of efficient service and economy in fuel maintenance." P. O. Wood (St. L. & S. F.), chairman. Afternoon session, 1:30 p. m. "Standing committee on revision of progressive examination for firemen for promotion and new men for employment." W. H. Corbett (M. C.), chairman. Committee report on change of constitution and by-laws. J. C. Petty (N. C. & St. L.), chairman. Election of officers. Adjournment.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, date of next or regular meetings and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—H. C. Boardman, D. L. & W., Hoboken, N. J. Annual convention, October 19-21, New Orleans, La.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Annual meeting, October 17, 18, Washington, D. C.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station, St. Louis, Mo. Annual meeting, August 16-18, 1916, Memphis, Tenn.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 8 W. 40th street, New York. Annual convention, October 9-13, Atlantic City, N. J.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—H. G. McConnaughy, 165 Broadway, New York. Annual convention, October 9-13, Atlantic City, N. J.

AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, general secretary, 75 Church St., New York.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 17-19, New Orleans, La.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—Owen D. Kinsey, Illinois Central, Chicago. Annual meeting, August 24-26, 1916, Hotel Sherman, Chicago.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS.—George W. Lyndon, 1214 McCormick Bldg., Chicago. Annual convention, October 10, 1916, Waldorf-Astoria, New York.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—P. C. Jacobs, H. W. Johns-Manville Co., Chicago. Meetings with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month. Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, C. H. & D., Lima, Ohio. Next meeting, August 15-17, 1916, Hotel Sherman, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1126 W. Broadway, Winona, Minn. Annual meeting, August 29 to September 1, Hotel Sherman, Chicago.

MAINTENANCE OF WAY AND MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—F. W. Hager, Fort Worth & Denver City, Fort Worth, Tex. Next convention, October 17-19, Philadelphia, Pa.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Next annual meeting, September 12-14, 1916, "The Breakers," Atlantic City, N. J.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. N. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Fire Ins. Agt., Mobile & Ohio, Mobile, Ala. Annual meeting, October 3-5, 1916, New York.

RAILWAY REAL ESTATE ASSOCIATION.—Frank C. Irvine, 1125 Pennsylvania Station, Pittsburgh, Pa. Annual meeting, October 10, 1916, Chicago.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Myers Bldg., Bethlehem, Pa. Next annual convention, September 12-14, 1916, Grand Hotel, Mackinac Island, Mich.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—F. J. McAndrews, C. & N. W., Sterling, Ill. Next annual convention, September 19-22, 1916, New York.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, October 18-20, Washington, D. C.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Piedmont Hotel, Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August. Waldorf-Astoria Hotel, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Gen'l Agent, Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings, bi-monthly, Pittsburgh.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, N. Y. C. R. R., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. R. R., Cleveland, Ohio. Next meeting, September 5-8, 1916, Hotel Sherman, Chicago.

UTAH SOCIETY OF ENGINEERS.—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Grand Pacific Hotel, Chicago.

WESTERN SOCIETY OF ENGINEERS.—E. N. Layfield, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

Traffic News

The Traffic Club of Chicago held a golf outing on July 27 at the Racine Country Club, Racine, Wis.

The Baltimore & Ohio has furnished for the Industrial Commission of Ohio a car to be used by that Commission in giving exhibits in relation to Safety First throughout that state.

A sleeping car is now run through between Philadelphia and Chicago over the Philadelphia & Reading, the Lehigh Valley and the Michigan Central. Westward, the car leaves Philadelphia at 9:30 a. m. and reaches Chicago at 8 a. m. Eastbound, it leaves Chicago at 9:05 a. m. and reaches Philadelphia at 9:15 a. m.

The Chicago, Burlington & Quincy is equipping its new lounging cars for its Chicago-Denver, Chicago-Omaha and Chicago-St. Paul trains with soda fountains, similar to those used in drug stores, from which passengers may be served at any time of the day or night. It is also planned to install fountains on the older cars.

The New York, New Haven & Hartford, on July 26, again ordered an embargo on all freight coming from connecting rail and steamship lines via Harlem River and Maybrook, N. Y., except perishable freight and livestock, government freight, newsprint paper, materials for the two companies, freight in common for the Boston & Albany, Boston & Maine, Central Vermont and New York Central roads, and freight originating on the New York, Ontario & Western. The embargo will be raised on August 2 at midnight.

At the summer meeting of the National Industrial Traffic League to be held at the Hotel Cadillac, Detroit, Mich., on August 10 and 11, reports will be received from the following committees: Executive, bill of lading, car demurrage and storage, baggage, legislative, rate construction and tariffs, transportation instrumentalities, weighing, freight claims, express, organization, general classification, and also from the special committee on relations with the National Association of Railway Commissioners, the official division, the southern division, the special committee on uniform classification, and the special committee on railway leases and side-track agreements.

The Southern Railway Company reports that during the fiscal year ended June 30, 1916, it carried nearly seventeen million passengers, and that of these passengers four were fatally injured: Two in a rear collision at Salisbury, N. C., "due to a human failure, the disgrace of which the management feels keenly"; one at Jamestown, N. C., when a truck failed under a freight car passing a passenger train; and one at Citico, Tenn., where a passenger was leaning out from the steps of a passenger car, and was struck by the truss of a bridge. The volume of business done was very heavy, compared with the previous year, yet there was a decrease of fifteen in the number of fatal injuries to employees.

The transcontinental lines have decided to advance on September 1 the freight rates from the East to the Pacific Coast terminals, and also certain eastbound rates on which the Interstate Commerce Commission has allowed reductions to meet Panama Canal competition; this in accordance with the recent order of the commission rescinding its previous order, which gave relief from the fourth section as to schedule C commodities westbound and a few Pacific Coast products eastbound. The rates to the coast will be so adjusted as to continue the present rates to intermediate points and to protect them against discrimination. It is reported that Pacific Coast shippers' organizations have decided to ask the commission for a rehearing of the case.

The United States Department of Agriculture announces that the quarantine for tuberculosis in cattle, in effect since October, 1914, has been lifted from Lake McHenry, Kane, Dupage, and Cook counties, in the State of Illinois, the order taking effect August 1. The quarantine placed upon these counties in 1914 forbade the interstate shipment from the quarantined area of cattle, for any purpose other than immediate slaughter, unless the cattle had been tested with tuberculin by, or under the supervision of, a Bureau of Animal Industry inspector and were accompanied by a Bureau of Animal Industry certificate, including a tuberculin test chart, showing the cattle to be free from the disease. It was placed at the request of the State Live Stock Sanitary Commission of Illinois, and its purpose has now been met. The State of Illinois now has a law enabling the State authorities to control the local situation.

Rail Traffic Into Mexico

Freight traffic to and from Mexico by rail remains almost at a standstill notwithstanding the recent action of the United States government in lifting the embargo against exportations of foodstuffs and other commodities. The Southern Pacific, the International & Great Northern, the Texas & Pacific and other lines are refusing to permit freight cars to cross the Rio Grande, and the equipment of the Mexico railroads is so scarce and shabby that what little freight is offered cannot be accepted. The Southern Pacific has about 1,200 freight cars lost "somewhere in Mexico," a result of its policy of a few months ago of permitting its cars to go into that country for use of the de facto government. The International & Great Northern has steadfastly refused to allow any cars on its line to cross the river even when offered a bond to cover losses.

Freight Rates in Georgia

The Georgia Shippers' Association has sent to each member of the legislature of the state a long letter, protesting against the proposed changes in freight rates which are to be the subject of the hearing before the railroad commission on August 17. It is alleged that the railways are preparing to "levy an additional tax" on the people of Georgia of $3,000,000 a year. The letter cites examples from the old and the proposed tariffs in which it appears that increases of 28, 42, 69 and 94 per cent are to be made in the rates for transportation of apples, watermelons, livestock, factory products, lumber, iron and steel, fertilizer and other articles.

The railroads of Georgia have again presented their case in the press, advertisements in large type appearing in the newspapers of the principal cities. Attention is called to the fact that the sixty cities which have been favored with "basing point rates" are the opponents of the proposed new tariff. What the railroads propose to do is to revise the intrastate rates in conformity with the principles which the interstate commerce commission has prescribed in the matter of interstate rates. The roads promise not to discriminate unjustly against Georgia producers in favor of other states. Some rates will be increased while others will be lowered; but to those who claim that an increase of income will be an unreasonable favor to the railways, it is shown that there has been a "tremendous advance" in everything which enters into the manufacture of transportation.

Economy in Distribution of Folders

The railroads in the Western Passenger Association, whose territory extends from Chicago and St. Louis west to the Rocky Mountains, have issued orders to the folder distributing agencies to discontinue the placing of time table folders and other similar advertising matter in hotels throughout the territory, with the exception of a few large cities, such as Chicago, St. Louis and Kansas City, in which the distribution will be continued in a few of the larger hotels. The exception as to these cities was made because they are located on the borders of the territory of other passenger associations in which the roads have not yet taken similar action. Committees of the various territorial passenger associations have been studying this question for more than two years, and many individual roads have already effected considerable economies. The Central Passenger Association roads have also recently taken action similar to that of the Western Passenger Association, and the Southwestern and Transcontinental Passenger Associations have been planning similar action. Many of these folders cost from $15 to $18 a thousand to print, and the railroad officers believe that there is a very great waste in their use when they are placed in hotels.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The Interstate Commerce Commission has ordered an investigation into the practice of making freight rates conditional upon the size of shipments, and notices have been sent to railroads to show cause before October 1 why the custom should not be discontinued.

Lumber from Louisiana Points

Opinion by Commissioner Clark:

Proposed increased rates on lumber in carloads from Leesville and other points in Louisiana on the Kansas City Southern to Galveston and intermediate points in Texas on the Gulf, Colorado & Santa Fe are found not to have been justified. (40 I. C. C., 268.)

Transit at Kansas Points

Opinion by Commissioner Meyer:

The commission finds that the Missouri Pacific-St. Louis, Iron Mountain & Southern system has justified a proposed restriction of the transit arrangement now in effect at Atchison and Leavenworth, Kans., on grain products and grain, drawn from Omaha and South Omaha, Nebr., and Council Bluffs, Iowa, and reshipped to Mississippi River and points east thereof. (40 I. C. C., 358.)

Pacific Coast—Southwest Lumber

Opinion by Commissioner Clark:

Proposed increased rates on lumber and lumber articles from points in Oregon, Washington, Idaho, Montana, and western Canada to points in New Mexico, Oklahoma, and Texas are found not justified.

The proposed increases ranged from one cent to 8½ cents per 100 lb., and the traffic affected thereby, with the exception of that to points in New Mexico, was limited to fir, larch, hemlock, cottonwood, pine, and spruce lumber and certain articles manufactured therefrom, all of which are designated in the tariff as group D. This group includes doors, not glazed, and sash knocked down. (40 I. C. C., 387.)

Clay from Florida

Opinion by Commissioner Daniels:

The commission finds that the carriers have justified proposed increased all-rail and rail-water-and-rail carload rates on kaolin clay from Edgar and Okahumpka, Fla., to points in central freight association territory, and certain points in Pennsylvania and West Virginia. This Florida clay is used chiefly in the ceramic arts in the manufacture of dinnerware, sanitary earthenware, bathroom equipment, floor and wall tile, electric porcelains, and minor specialties like door knobs, rings for hanging gas mantles, and spark plugs. It competes for the most part with clay imported from England. (40 I. C. C., 275.)

Molasses from Texas and Louisiana

Opinion by Commissioner Clements:

The commission finds that the carriers have justified proposed increased carload rates on domestic molasses (other than blackstrap) from New Orleans and other Louisiana and Texas points, to points on the Ohio, Mississippi, and Missouri rivers and to points in Tennessee, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, South Dakota, Iowa, and Missouri and also proposed increased rates on domestic blackstrap, carloads, in tank cars, from New Orleans, La., and other Louisiana points, Mobile, Ala., Gulfport, Miss., Pensacola, Fla., and other points, to Memphis, Tenn., St. Cloud, Minn., and Missouri river cities.

They have not justified proposed increased rates on molasses (other than blackstrap) from the same originating points to points west of the west bank of the Missouri river and west of the line of the Kansas City Southern, except Lincoln, Neb., and Fort Scott, Kans., or proposed increased rates on domestic blackstrap, in carloads, in tank cars, from the same originating points to points in Kansas and Oklahoma and to Fort Calhoun, Neb. (40 I. C. C., 435.)

Applications Under the Panama Canal Act

In re Ashtabula-Port Maitland car-ferry service. Opinion by Commissioner McChord:

The Toronto, Hamilton & Buffalo upon the application of the Michigan Central is allowed to institute a car-ferry service between Port Maitland, Ont., and Ashtabula, Ohio. The Toronto, Hamilton & Buffalo is owned 17.9 per cent by the Michigan Central and 37.1 per cent by the New York Central. It has purchased a ferry boat with a capacity of 30 loaded freight cars of 50 tons each, at a cost of $385,000. It is also extending its line from Dunnville to Port Maitland, at which point necessary slip docks are also under construction and will institute a car-ferry service between Port Maitland and Ashtabula, where connection will be made with the New York Central. (40 I. C. C., 143.)

In re Delaware & Hudson boat lines. Opinion by Commissioner Harlan:

The commission finds that the Delaware & Hudson competes with the steamers of its controlled companies, the Lake Champlain Transportation Company and the Lake George Steamboat Company. The railway is allowed to continue its interest in the steamboat lines, however, because the service of the two lake lines is in the interest of the public and is of advantage to the convenience and commerce of the people. (40 I. C. C., 297.)

Rates on Glucose

J. C. Hubinger Brothers Company v. Atchison, Topeka & Santa Fe et al. Opinion by Commissioner Harlan:

At the present time there is applicable on shipments of glucose in tank cars from Keokuk, Ia., to north Pacific coast points, a commodity rate of 80 cents per 100 lb., the minimum weight being the capacity of the car. There is also applicable a rate of 75 cents per 100 lb. when box-car equipment is used and the glucose is contained in barrels, the carload minimum weight being 36,000 lb. In this case the rate on glucose in tank cars is alleged to be unreasonable insofar as it exceeds the lower rate on the same commodity when shipped in barrels in box cars. The commission finds, however, that the rate of 80 cents is just and reasonable, basing its findings on the fact that there is no return loading for the tank-car equipment and that in the case of barrel shipments the container must be furnished by the shipper and freight must be paid on the weight of the barrel as well as on the commodity. Further, when shipments are made in tank cars, the carrier must pay for the use of the car if the car is furnished by the shipper. Reparation is awarded, however, for payment of a rate in excess of 80 cents. (39 I. C. C., 672.)

Export Rates from Missouri River Cities to Norfolk and Newport News Va.

In re export grain products from Missouri river points (No. 2). Opinion by Commissioner McChord:

During the season of navigation on the great lakes, the Atchison, Topeka & Santa Fe, the Chicago & Alton and the Chicago Great Western, in common with other carriers, maintain joint proportional rates from Missouri river cities to Norfolk and Newport News, Va., on grain products for export equal to the prevailing rate from the same points of origin via rail-lake-and-rail routes to Baltimore, Md. At the close of the season of navigation each year such rates are customarily withdrawn, leaving higher through rates in effect. The proposed withdrawal of these rates via respondents' lines was suspended and an investigation was made into the propriety and reasonableness thereof. The commission finds that the rates which would result from the proposed withdrawal form part of a general adjustment of rates on grain and grain products exported through Atlantic and Gulf ports made in competition with rates to other ports. That the establishment of the higher rates would not be in contravention of the provisions of the fourth section of the

act to regulate commerce, and that the proposed withdrawal of the joint rates has been justified under the circumstances of this case. (40 I. C. C., 195.)

St. Louis, Mo. (Cupples Station) Terminal Regulations

Opinion by Commissioner Daniels:

The Wabash and Chicago & Alton, at Cupples Station, St. Louis, Mo., without charge to the consignee, unload carload package freight onto trucks and lift it, by elevator, from the depressed track level to the station platform on the street level, where the freight is received from trucks, in some instances at points on the platform contiguous to warehouse doors by certain consignees in various buildings in Cupples Block adjacent to the station; and in some instances at a space on the platform opening out on a driveway leading to Spruce street by consignees who have no direct connection with the station and who have to haul away their freight by wagon. Certain warehousemen who receive their carload freight from private sidings, at their own expense for unloading, complain that by reason of the free service described carload shipments of freight, principally pool cars, are attracted through that station that otherwise would come to them for distribution for hire. The commission finds that although about 85 per cent of the station's freight is handled for consignees with warehouses immediately adjacent to the station platform, Cupples Station is a bona fide railroad station, and that under the peculiar conditions there existing the practice described does not discriminate against other shippers who receive freight through the station or in favor of all patrons of the station against receivers of freight from team tracks, private sidings, or other public freight stations in St. Louis. The arrangement under which Cupples Station is operated is unusual but not in itself unlawful. It does not result in discrimination between patrons of the station or is it otherwise in violation of the act to regulate commerce. (40 I. C. C., 425.)

Wharfage at Gulfport, Miss.

Andreas Gunderson v. Gulf & Ship Island. Opinion by Commissioner McChord:

Under the defendant's rules governing the use of its wharf at Gulfport, Miss., vessels engaged in miscellaneous cargo service are given preference in the assignment of space for loading over vessels engaged in the transportation of solid cargoes of lumber or other commodity. The complainant's bark Edderside refused, when first requested, to vacate temporarily for the benefit of another vessel, and for its refusal was denied space that later became available, until all other waiting vessels had been served. The commission holds that this action on the part of the defendant was not warranted by the rule and was unreasonable. The amount of the complainant's damage is held, however, not to have been sufficiently established upon the record to warrant a reward of reparation.

The lawfulness of purpose of the defendant's rule is not definitely passed upon in this report, in view of the complainant's independent cause of action arising from its improper application. The commission holds that as now framed, the rules are indefinite and should be revised. It is held further that they should also be filed with the commission, subject to future review, if necessary, upon complaint.

The record affords an unsatisfactory basis for determining who is entitled to the refund of demurrage that unreasonably accrued by reason of the Edderside's inability, during the period it was denied loading space, to take the lumber, which was the commodity here involved, from the defendant's cars. The case is held open for 30 days within which the complainants may petition, if they desire, for further hearing on the question of reparation. (39 I. C. C., 747.)

Complaints Dismissed

Eastern Shore of Virginia Produce Exchange v. New York, Philadelphia & Norfolk et al. Opinion by Commissioner Hall:

The rates on vegetables and berries from points on the New York, Philadelphia & Norfolk in Accomac and Northampton counties on the eastern shore of Virginia to points in Ohio, Indiana, Michigan, Illinois, Wisconsin and Iowa are not found unreasonable nor unduly preferential. The complaint arises because the New York, Philadelphia & Norfolk carries traffic from Norfolk, where it meets the rates on other carriers, at lower rates than the points intermediate on its line on the eastern shore of Virginia. (40 I. C. C., 328.)

Procter & Gamble Distributing Company v. Alabama & Vicksburg et al. Opinion by Commissioner Meyer:

Complaint is made that the rates on soap, soap powder, cleansing powder, and lard substitute from Ivorydale, Ohio, and St. Bernard, Ohio, suburbs of Cincinnati, Ohio, and Kansas City, Mo., and Kansas City, Kans., and the through rates on lard substitute in carloads and less than carloads from Macon, Ga., to points in Louisiana are unreasonable, discriminatory, and constitute departures from the rule of the fourth section of the act.

The commission's findings are as follows: The finding of the commission in *Through Rates to Points in Louisiana and Texas*, 38 I. C. C., 153, disposes of the allegations respecting the reasonableness of the rates involved and the allegations that they exceed the aggregate of the intermediate rates. The matter of rates alleged to be in contravention of the long-and-short-haul rule of the fourth section is reserved for further consideration. Existing rates from Cincinnati unjustly discriminate against that point in favor of Chicago, Ill. Readjustments of rates in response to findings of the commission in *Through Rates to Points in Louisiana and Texas* may make an order to remove that discrimination unnecessary. (40 I. C. C., 367, 373.)

Less Than Carload Rates on Live Stock

National Society of Record Associations et al v. Aberdeen & Rockfish et al. Opinion by Commissioner Clements.

Complainants, associations representing nearly 100,000 breeders of pedigreed live stock, seek in this proceeding uniformity throughout the United States in the classifications, rules, and regulations relating to the transportation of live stock in less than carloads. All rail carriers reporting to this commission are parties defendant. Complainants, whose shipments are from and through different classication territories, allege that the rules, regulations, and practices of the defendants relating to minimum weights, standard or basic values, increased charges for increased values above the standard, attendants accompanying shipments, and the rates charged on small stock in crates, are unlawful, diverse, and conflicting. The comprehensiveness of the allegations of the complaint and the fact that all rail carriers engaged in the interstate transportation of live stock are parties defendant present issues the decision of which requires the commission to determine whether or not uniformity with respect to the transportation involved is practicable; and, if so, what classifications and rules should be prescribed as just and reasonable.

The commission's findings are as follows:

The minimum weights applied to these shipments in the various classifications are unreasonable in so far as they exceed minima herein found reasonable, which will be the same for all territories. These reasonable minimum weights are as follows:

Animal	Minimum weight Lb.	Animal	Minimum weight Lb.
Stallions or jacks	3,000	Cow and calf (6 months)	2,500
Additional	3,000	Additional	2,500
Horses, mules or horned animals	2,000	Yearling bulls	2,000
Second	1,500	Yearling cattle	1,000
Third	1,500	Colts, 1 year and under	750
Additional	1,000	Additional	750
Bulls	2,000	Calves less than 1 year old	500
Additional	2,000	Hogs	250
Mare and colt (6 months)	2,500	Sheep and goats	200
Additional	2,500		

The standard or basic values limiting the liability of the carrier for animals so shipped are unreasonable in so far as they are less than the valuations herein found reasonable.

These reasonable basic values are as follows:

Each horse or pony (gelding, mare or stallion), mule, jack, or jenny	$150	Each cow	$50
Each colt under 1 year old	75	Each calf	20
Each ox, bull, or steer	75	Each hog	15
		Each sheep	5
		Each goat	5

Rates should not increase for increased value above the reasonable standard values by percentages in excess of 2 per cent for each 50 per cent or fraction thereof of value in excess of such standard.

All provisions in the classifications and tariffs of defendants requiring shippers to furnish attendants with such shipments are

unreasonable and should be canceled. This provision will henceforth be permissive.

Rates on less-than-carload shipments of live stock crated are found unreasonable to the extent that they exceed rates on like animals uncrated.

Provisions of defendants' live-stock contracts will be considered in connection with the commission's general investigation now pending, *In the Matter of Bills of Lading,* Docket 4844. (40 I. C. C., 347.)

Nashville Switching

Opinion by Commissioner Meyer:

In City of Nashville v. Louisville & Nashville, 30 I. C. C. 76, the commission found that the Louisville & Nashville and the Nashville, Chattanooga & St. Louis preferred each other and discriminated against the Tennessee Central in the matter of switching at Nashville. These two first named carriers maintain and operate jointly their terminal facilities at Nashville, except their individual team tracks and freight depots, under an arrangement called the Nashville Terminals. Shippers over the Tennessee Central have paid nothing in addition to the line-haul rates for switching by the Tennessee Central, but have been charged $3 per car by the Nashville Terminals for switching noncompetitive traffic to and from the Tennessee Central and at rates equivalent to from $7 to $36 per car for switching competitive traffic. The commission found in the former case that the Nashville Terminals arrangement constituted a facility for the interchange of traffic between the Louisville & Nashville and the Nashville, Chattanooga & St. Louis; that respondents' refusal to switch competitive traffic to and from the Tennessee Central on the same terms as noncompetitive traffic, while they switched both kinds of traffic on the same terms for each other was discriminatory; and that so long as they switched both competitive and noncompetitive traffic for each other at cost, they could not charge more than the cost of the service for switching both kinds of traffic to and from the Tennessee Central.

The respondents have now proposed a charge of $7.50 a car for both competitive and noncompetitive switching. The commission, after investigation, finds that this charge would be unreasonable, but that a charge of not exceeding $5 would not be improper. (40 I. C. C. 474.)

Rates on Coal to Memphis, Tenn.

Galloway Coal Company et al. v. Alabama Great Southern et al. Opinion by Commissioner Clements:

The relative adjustment of carload rates on bituminous coal from mines in southern Illinois, western Kentucky and northwestern Alabama to Memphis and other points in southwestern Tennessee are found not to be unduly prejudicial to mines in northwestern Alabama. Differentials in rates to common markets in favor of certain producing points can be prescribed only when discrimination can be found, and discrimination can be found only where the traffic from those points and from competing points moves all or a part of the way to the common markets over the rails of the same carrier.

The relative adjustment of carload rates on coal from the same mines to Mississippi and Louisiana east of the Mississippi river are found prejudicial to mines in northwestern Alabama, but the adjustment approved in Bituminous Coal to Mississippi Valley Territory, 39 I. C. C., 378, is found remedial. Long established rate adjustments that accord competing producing districts located at different distances from common markets equal rates will not be disrupted unless substantial justice requires it. The interests of consumers must be considered as well as the interests of producers, and dissatisfied producers deprived of the natural advantage of location must establish actual injury as a result of the discrimination.

The divisions of joint rates received by short lines in Mississippi on shipments of coal purchased by them for fuel are held not to be prejudicial to mines in northwestern Alabama.

The relative adjustment of carload rates on coal from the same mines to points in southwestern Arkansas, Louisiana west of the Mississippi river, and southeastern Texas, are held not to be prejudicial to mines in northwestern Alabama. (40 I. C. C., 311.)

COURT NEWS

Limitations of "Attractive Nuisance" Doctrine

The Missouri Supreme Court holds that a railroad right of way between two highways, fenced in the usual manner and having at one end an abutment to a bridge over a highway, constructed so as to form steps leading from the highway to the track, is not an attractive nuisance rendering the company liable for injuries to a girl who climbed up the abutment and was injured while walking along the track. Only very exceptional circumstances would render the attractive nuisance doctrine applicable to an intelligent girl, 15½ years old.—Shaw v. Chicago & Alton (Mo.) 184 S. W., 1151.

Reduction of Damages by Contributory Negligence

The Texas statute provides that, in a servant's action for injuries arising out of and in the course of his employment, in the event of contributory negligence, "the damages shall be diminished by the jury in proportion to the amount of negligence attributable to such employee." Where a plaintiff demanded $50,000, the Texas Court of Civil Appeals held that a special verdict of $17,500 was too indefinite to stand, since it could not be determined whether the jury found large damages, and reduced them because of great contributory negligence, or damages of, say, $18,000 and only slight negligence of the plaintiff.—Missouri, K. & T. v. Pace (Tex.) 184 S. W., 1051.

Liability for Injuries Resulting from Violation of Separate Coach Law

The Texas Court of Civil Appeals holds that where the servants of a railroad knew, or by the exercise of due care might have known, that a white man was in a negro coach, in violation of the separate coach law, and was negligent in not removing such white person from the coach, the road was liable for injuries inflicted on a negro passenger.—Texas & Pacific v. Baker (Tex.) 184 S. W., 664.

Recent Cases Under the Federal Employers' Liability Act

The Kentucky Court of Appeals holds that an employee engaged as a pan puller in a railroad yard, assisting in cleaning engines of ashes, and required to go into the pit under the engines and pull the ashes down into the pit, and afterwards clean the pit of ashes, which pit was an instrumentality in the operation of the railroad's engines, and was used by engines engaged in interstate commerce, was engaged in interstate commerce though he was injured by the backing down of a yard engine.—Cincinnati, N. O. & T. P. (Ky.), 185 S. W., 94.

The Alabama Supreme Court holds that a fireman in a crew making up interstate trains, injured during a temporary lull in the work, was engaged in interstate commerce within the act.—Alabama Great Southern v. Skotzy (Ala.), 71 So., 335.

The Kentucky Court of Appeals holds that a baggagemaster whose run was from Cincinnati, Ohio, to Maysville, Ky., and back, and who was injured at Maysville while assisting in sidetracking the train to permit the passage of another, pursuant to the usual custom regarding his train, was injured in interstate commerce.—Chesapeake & Ohio v. Shaw (Ky.), 182 S. W., 653.

In an action for the death of an engine hostler, killed by the sudden falling of a bucket which was being moved by a hoist it appeared that in response to a call by a machinist to help remove the yoke from the bucket, the deceased left an engine which had come in for hostling, walked some 150 feet to the place where the bucket was being hoisted, and was there killed by its fall. The Circuit Court of Appeals, Third Circuit, held that, assuming the deceased was engaged in interstate commerce while acting as hostler, the machinist in attempting to remove the yoke was not so employed, the hoist was not, while moving the bucket, an instrumentality used in such commerce, and the deceased, in assisting with the bucket, was not assisting the machinist in interstate commerce within the act.—Erie v. Van Buskirk, C. C. A., 228 Fed., 489.

The Michigan Supreme Court holds that the engineer of a train engaged in hauling gravel for the repair and improvement of

his company's roadbed, over which interstate commerce regularly passed, was engaged in interstate commerce, so that for his injury from a collision he might maintain an action under the act.—Holenberg v. Lake Shore (Mich.), 155 N. W., 504.

The New Jersey Court of Errors and Appeals holds that, as a car which had been engaged in interstate commerce lost its character as an "interstate commerce" car the instant the cargo was fully discharged, and did not acquire a new character as an interstate commerce car until the railroad manifested its intention by act or word to so use it, an employee injured by the car while it was empty and awaiting orders could not recover under the act.—Moran v. New Jersey Central (N. J.), 96 Atl., 1023.

The Circuit Court of Appeals, Fourth Circuit, holds that one who is injured while attempting to erect a telegraph pole to support wires over which messages are to be sent in directing the operation of trains of a company engaged in interstate commerce is engaged in interstate commerce within the act.—Coal & Coke Railway Co. v. Deal, 231 Fed., 604.

In an action for death of a railroad employee under the federal employers' liability act, there must be evidence of pecuniary damage to his beneficiaries before such damage can be allowed. The measure of damages of a widow and children is the probable amounts they would have received from the deceased if he had lived, and not his probable earnings; the amount the deceased would probably have earned for their benefit, taking into consideration his age, ability and disposition to work and habits of life and expectancy. The damages to the widow should be calculated on the basis of her expectancy of life as well as her husband's. The damages to the minor children for the loss of support should be confined to their minority. Where there was proof of the earning capacity of the deceased and of his expectancy of life, but nothing to show what his beneficiaries, his widow and minor child, might reasonably have expected to receive from him for their support, the Tennessee Supreme Court held that a recovery for nominal damages could alone stand.—N. C. & St. L. v. Anderson (Tenn.), 185 S. W., 677.

Where the evidence showed that a switchman was employed in switching cars in a yard, putting them into strings of cars for transportation into another state, the only transportation by railroad out of the state being such as was given by the switching crew, and the cars being destined for immediate interstate transportation, the Minnesota Supreme Court held that a finding that he was employed in interstate commerce was justified.—Hurley v. Illinois Central (Minn.), 157 N. W., 1005.

The Supreme Court of the State of Washington holds that a person inspecting the main track of a railroad engaged in intra and interstate commerce is engaged in interstate commerce within the act. The rules of a railroad required section men to keep a lookout for trains. The deceased, who was inspecting the track on a speeder, was held to be guilty of negligence in not maintaining a lookout for trains, regular or irregular, particularly as he wore a cap which covered his ears so as to affect his hearing, and his negligence was at least equal to that of the railroad in running an engine backwards without maintaining a proper lookout. The action was tried without a jury, and the trial court made no deduction for the deceased's contributory negligence. It was held that the Supreme Court might make such deduction from the award and affirm the judgment.—Anest v. Columbia & Puget Sound (Wash.), 154 Pac., 1100.

The Nebraska Supreme Court holds, in an action under the act, that an employee on a train who failed to perform his duty of placing signals on the track when his train stopped, and was killed by a rear collision, was guilty of contributory negligence. The court instructed the jury that the man's contributory negligence had been shown, but the jury made no deduction in the amount of the verdict because of it. It was held that the court might order such remittitur as seemed proper under the evidence.—Hadley v. Union Pacific (Neb.), 156 N. W., 765.

The Kentucky Court of Appeals holds that where the deceased was earning about $100 a month as brakeman, a verdict under the act against a railroad for his death giving $6,500 damages to his father, who had an expectancy of only 11.48 years, and whom the deceased had never supported, although he had declared his intention to do so, was excessive.—Pittsburgh, C., C. & St. L. v. Collard's Admr. (Ky.), 185 S. W., 1108.

Railway Officers

Executive, Financial, Legal and Accounting

H. C. Holloway has been elected vice-president of the Ft. Smith, Poteau & Western, with headquarters at the Railway Exchange building, Chicago, Ill., vice F. W. Coolidge, Jr.

John F. Turner, auditor of freight receipts of the Boston & Maine at Boston, Mass., has been appointed general auditor, with office in North Station, Boston, vice Stuart H. McIntosh, resigned to engage in other service. Effective August 1.

Operating

Daniel B. Dickey, assistant chief despatcher of the St. Louis division of the Illinois Central, has been appointed chief despatcher, with office at Carbondale, Ill., vice P. E. Odell, promoted.

The jurisdiction of Superintendent E. L. Bock now extends over the Huntington and Big Sandy divisions of the Chesapeake & Ohio; C. A. Pennington, superintendent of terminals at Louisville, Ky., has been appointed assistant superintendent of the Huntington and Big Sandy divisions. Both with headquarters at Huntington, W. Va. H. A. Davin has been appointed trainmaster of the Handley district, with headquarters at Handley, W. Va., vice F. L. Fletcher, transferred. D. S. Baals, assistant trainmaster and road foreman of engines at Paintsville, Ky., has been appointed assistant trainmaster and road foreman of engines of the Handley district, with headquarters at Cane Fork, W. Va., vice Mr. Davin, and M. B. Daniels has been appointed assistant trainmaster and road foreman of engines of the Big Sandy division, with headquarters at Paintsville, vice Mr. Baals.

Vincent Victor Boatner, whose appointment as superintendent of the New Orleans division of the Yazoo & Mississippi Valley has been announced, was born at Bethlehem, Miss., on May 6, 1881, and was educated at Mississippi College. He first entered railway service on September 8, 1901, as trainmaster's clerk on the Yazoo & Mississippi Valley at Greenville, Miss. He later served in the same capacity at Wilson, La., and on July 1, 1903, entered the telegraph service of the road. He was promoted to train despatcher on April 13, 1904, and to chief despatcher on April 1, 1906. He was appointed trainmaster on the New Orleans division on April 1, 1907, and later was trainmaster on the Vicksburg and Memphis divisions. On July 1, 1915, he was transferred to the Indiana division of the Illinois Central at Mattoon, Ill., where he remained until his appointment as superintendent of the New Orleans division of the Yazoo & Mississippi Valley, with headquarters at Vicksburg, Miss., effective July 15.

John Willard Fitzgerald, whose appointment as superintendent of the Southern Pacific at Tucson, Ariz., has been announced, was born at Brighton, Mich., on June 24, 1869, and was educated at Brighton high school. He first entered railway service as an operator and clerk on the Detroit, Lansing & Northern and continued as such from 1883 to 1899. Between 1889 and 1890, he was employed by the Denver & Rio Grande as agent and by the Union Pacific as operator. He first entered the service of the Southern Pacific in 1890 as a telegraph operator at Mojave, Cal. In the same year he was transferred to the Sacramento division as operator and continued as such until 1895, when he was promoted to despatcher. He was appointed night chief despatcher on April 1, 1903, and chief despatcher at Dunsmuir, Cal., on July 31, 1903. He was appointed assistant superintendent of the Shasta division on September 1, 1910, and on May 15, 1916, was transferred to the Western division at Oakland Pier, Cal. His appointment as superintendent of the Tucson division took effect on July 1.

William Francis Thiehoff, whose appointment as assistant general manager of the Chicago, Burlington & Quincy, lines west of the Missouri river, has been announced, was born at Hunnewell, Mo., on June 25, 1866, and was educated in the public schools. He entered railway service in 1883 as a section laborer

on the Burlington. From August 10, 1885, to March, 1887, he was telegraph operator on the same road. He then entered train service as a freight brakeman, and from May, 1889, to January 1, 1905, was successively freight and passenger conductor. He was then made trainmaster of the St. Joseph division, and on March 1, 1906, was transferred in the same capacity to the Brookfield division. From October 10, 1907, to July 3, 1908, he was assistant superintendent, and then superintendent on various divisions of the road. He was appointed general superintendent of the Nebraska district, with headquarters at Lincoln, Neb., in February, 1915, and was promoted to assistant general manager of the lines west of the Missouri river, with headquarters at Omaha, Neb., on July 1, 1916.

George J. Derbyshire, whose appointment as superintendent of the Chesapeake & Ohio of Indiana, with headquarters at Peru, Ind., has been announced, was born at Richmond, Va., on March 11, 1875. He was educated in the public schools at Huntington, W. Va., and first entered railway service on November 1, 1893, as a night operator on the Chesapeake & Ohio at Ona, W. Va. From March 14, 1894, to April 20, 1898, he was operator and night ticket clerk on the same road at Ashland, Ky. He was then stationed at Peach Orchard, Ky., as agent and operator. On July 1, 1889, he was transferred to Whitehouse, Ky., as agent and operator, and on November 1, 1904, was made extra despatcher at Ashland, Ky., on the Lexington and Big Sandy divisions. He was later made regular despatcher at that point, and on September 11, 1911, was appointed trainmaster of the Miami district of the Chesapeake & Ohio of Indiana. From January 1, 1913, to July 1, 1916, he was trainmaster of the Chesapeake & Ohio of Indiana, with jurisdiction over both the Wabash and Miami districts. His appointment as superintendent with headquarters at Peru, Ind., was effective on July 1.

Traffic

R. C. Caples, general traffic manager of the Western Maryland, at Baltimore, Md., has resigned to go into other business.

G. L. Oliver has been appointed general freight and passenger agent of the Ft. Smith, Poteau & Western, with headquarters at Ft. Smith, Ark., vice J. E. Parrott.

J. C. Haile, general passenger agent of the Central of Georgia at Savannah, Ga., has been appointed passenger traffic manager, and F. J. Robinson, assistant general passenger agent, has been appointed general passenger agent. Both with headquarters at Savannah.

Engineering and Rolling Stock

The title of H. O. Kelley, division engineer of the Evansville & Indianapolis at Terre Haute, Ind., has been changed to engineer maintenance of way.

B. B. Shaw, assistant engineer of the Chicago, Rock Island & Pacific at Haileyville, Okla., has been appointed division engineer of the Arkansas division, with headquarters at Little Rock, Ark., vice J. G. Bloom, promoted.

E. Meinhold has been appointed supervisor of equipment of the Evansville & Indianapolis, with headquarters at Greenwood yard, Terre Haute, Ind. He will report to the superintendent in all matters pertaining to inspection and maintenance of cars, and will have supervision over inspectors and car men at various points.

Samuel Murray, whose appointment as chief engineer of the Oregon-Washington Railroad & Navigation Company, with headquarters at Portland, Ore., has been announced, was born at San Francisco, Cal., on June 20, 1880. He graduated from the University of California in 1902, and entered railway service with the Southern Pacific in August, 1902, after a short period of employment with the American Bridge Company. He was draftsman and laborer on bridge construction for the Southern Pacific until 1906, when he was appointed chief draftsman in the office of the consulting engineer of the Harriman lines. In 1907 and 1908 he was bridge engineer of the San Pedro, Los Angeles and Salt Lake, and in 1909 he was appointed bridge engineer of the Oregon & Washington, with headquarters at Seattle, Wash. He continued to hold this position after this road was merged with the Oregon-Washington Railroad & Navigation Company. Following the temporary retirement of J. R. Holman in September, 1915, he was made acting chief engineer, and upon Mr. Holman's permanent retirement he was appointed chief engineer, effective July 1, 1916.

W. R. Armstrong, general manager and chief engineer of the Salt Lake & Utah, has been appointed engineer maintenance of way of the Union Pacific, with office at Omaha, Neb., effective August 1. Mr. Armstrong has had 25 years of railroad experience, both as an engineer in charge of construction and maintenance of way and as an operating official. Prior to coming to the Oregon Short Line in 1905, he was connected with various lines in the Middle West. During his first year with the Oregon Short Line he carried out some special engineering work, and in the following year was placed in charge of the construction of the Yellowstone Park branch and also in charge of the extension from Huntington, Ore., down the Snake River canyon, to Homestead. In 1908, Mr. Armstrong was made superintendent of the Montana division, which position he held until 1913, when he was appointed general manager and chief engineer of the Salt Lake & Utah, then under construction.

W. R. Armstrong

OBITUARY

James Peabody, statistician of the Atchison, Topeka & Santa Fe at Chicago, died on July 25 at Topeka, Kan.

Edward C. Clifton, assistant general solicitor of the Lehigh Valley, at New York, died on July 24, at his home in Glen Ridge, N. J., at the age of 39.

RAILWAY EXTENSION IN URUGUAY.—A project has been presented to the Uruguayan chamber of deputies, authorizing the government to make surveys and prepare plans for a railway line to start near the Santa Lucia bar, on the Northern (State) Railway, and to traverse the Departments of San Jose and Flores, via Libertad, San Jose (city), and to the left of Trinidad (which is to be joined up by a short branch line). Thereafter the projected route, following the direction of the Cuchilla Grande range of hills, is to cross the River San Gregorio to the north of the Paso de Las Piedras, proceeding to Las Flores, and finally connecting with the Midland of Uruguay Railway at the station of Algorta.

"PROJECTED AUSTRIAN RAILWAYS."—The Hungarian correspondent of The Times (London), writing from Budapest, says that the military and civil governors of the "occupied Southern Slav provinces," as Serbia, Montenegro and the occupied part of Albania are being officially styled, have instructed a small army of engineers and surveyors to prepare the plans of a net of railways the building of which it is proposed to start immediately. It is intended to construct three main lines. One is in connection with the Budapest-Belgrade railway, to lead through Bosnia and the Drina Valley, via Stephanovo Dolje and the Tara Valley to Lake Skutari, and continuing through Northern Albania to terminate at Avlona. The second main line is destined to connect Uskub via Prizrent with San Biovani di Medua, while the third line is to be a continuation of the existing Salonika-Monastir railway, via Resnia, Ochrida, and Ljes to Avlona. The tracing work is mostly in the hands of German engineers, and it is rumored that the concessions for these railways have been granted to a syndicate of German and Austro-Hungarian banks, led by the Deutsche Bank of Berlin. These railways are to constitute a new trade route to Egypt and North Africa.

Equipment and Supplies

LOCOMOTIVES

THE PENNSYLVANIA EQUIPMENT COMPANY, 1438 So. Penn square, Philadelphia, Pa., is in the market for a second-hand 55 to 60 ton standard gage Heisler locomotive and for a second-hand 80 to 85 ton standard gage passenger locomotive.

THE DULUTH, WINNIPEG & PACIFIC has ordered 10 Consolidation locomotives from the American Locomotive Company. These locomotives will have 24 by 32 in. cylinders, 63 in. driving wheels, a total weight in working order of 240,000 lb., and will be equipped with superheaters.

FREIGHT CARS

THE CHICAGO & ALTON is inquiring for 50 40-ft. and 50 50-ft. automobile cars.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 900 center constructions from the Bettendorf Company.

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for a few 2-ton billet cars of 24 or 30 in. gage.

THE CHICAGO & NORTH WESTERN has ordered 200 wooden mine cars from the Duncan Foundry & Machine Company, Alton, Ill.

THE RUSSIAN GOVERNMENT is reported to have placed an order through the Imperial Munitions Board at Ottawa for 7,000 box cars, to be built by the Canadian Car & Foundry Company and the National Steel Car Company.

PASSENGER CARS

THE MISSOURI PACIFIC is inquiring for prices on six steel dining cars.

THE PENNSYLVANIA RAILROAD has ordered 2 70-ft coaches from the Pressed Steel Car Company for the New York, Philadelphia & Norfolk.

IRON AND STEEL

THE CANADIAN PACIFIC is in the market for 25,000 tons of rails.

THE FRENCH GOVERNMENT has ordered 14,000 tons of rails from the United States Steel Corporation.

THE SOUTHERN PACIFIC has ordered 80,000 tons of rails from the Tennessee Coal, Iron & Railroad Company.

MISCELLANEOUS

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for a second-hand belt-driven air compressor with a capacity of 500 cu. ft. and of 90 to 100 lb. pressure.

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for one second-hand, 10-ton Browning four-wheel standard locomotive crane with about 40 ft. boom and equipped with steel canopy top, double drum and cables. The crane is to be furnished with complete equipment, with the exception that no bucket is required.

SWEDISH STEEL INDUSTRY IN 1916.—Sweden's production of pig iron and puddled iron and of steel ingots in the first quarter of this year was 381,200 tons, against 325,600 tons to April 1, 1915, and 359,300 tons to April 1, 1914. The pig-iron output was 197,600 tons, against 162,300 and 186,100 tons to April 1, 1914 and 1913, respectively. Exports of iron ore to April 1, 1916, were 772,000 tons, against 711,000 and 934,000 tons in the same periods in 1915 and 1914, respectively. Pig-iron exports were 45,200 tons in the first quarter of this year, against 43,300 tons to April 1, 1915, and 19,600 tons to April 1, 1914.—*Iron Age.*

Supply Trade News

The American Steel Foundries are reported to be negotiating for a duplication of the $18,000,000 order closed last year.

The American Locomotive Company has closed a contract for 8-inch shells for Great Britain, totaling about $15,000,000.

The American Car & Foundry Company has closed contracts for 9.2-inch shells amounting to approximately $18,000,000.

The Protective Signal Manufacturing Company, Denver, Colo., has opened a Chicago office at 550 Peoples' Gas building, under the direction of J. M. Fitzgerald and O. S. Flath.

M. T. Kirschke, sales representative of the Baldwin Locomotive Works, with headquarters at Chicago, Ill., died at his home in that city on July 18, after an illness of several weeks.

Oscar F. Ostby, until recently general sales agent of the Commercial Acetylene Railway Light & Signal Company, with office in New York, has been appointed general manager of the Refrigerator, Heater & Ventilator Car Company, St. Paul, Minn. Mr. Ostby, is very well known in the railway supply field. He has been particularly active in the work of the Railway Supply Manufacturers' Association, having been chairman of the badge committee, a member of the executive committee from 1912 to 1914, vice-president of the association in 1914-1915 and its president in the year just ended. He has also been active in the International Acetylene Association, having been a director and vice-president and in 1909-1910 its president. As the chairman of the association's legislative committee, he led the fight against the passage in several states of headlight laws requiring the use of electric equipment only. Mr. Ostby was born March 5, 1883, and received his education in the public schools of Providence, R. I. From 1901 to November, 1904, he engaged in publicity work. He then entered the service of what was later the Commercial Acetylene Railway Light & Signal Company, and at the time of his resignation on June 1 of this year was the general sales agent of the company.

O. F. Ostby

W. G. Cook, who was recently appointed assistant to the general sales manager of the Garlock Packing Company, has been appointed manager of the Chicago branch of the company.

L. H. Mesker has been appointed sales manager of the Kearney-Trecker Company, Milwaukee, Wis., with direct supervision over sales in Ohio territory.

The Pressed Steel Car Company has declared a dividend of one per cent on its common stock. No dividend on this stock has been declared since the dividend of 75 cents in the last quarter of 1914.

Judge Clarke of the United States District Court has decided in a suit brought by the Berger Manufacturing Company against the Trussed Concrete Steel Company for infringement of patent that the claim of the Berger patent under which the suit was brought for infringement is void and has dismissed the bill of complaint.

J. S. Hobson, general manager of the Union Switch & Signal Company, has been appointed western manager in charge of the Chicago, St. Louis and San Francisco offices with headquarters

in Chicago. C. E. Denney, assistant general manager, has been appointed assistant to the president with headquarters at Swissvale. The positions of general manager and assistant general manager have been abolished.

The Rail Joint Company, New York, has made the following announcement: "The Bonzano Rail Joint Company, as well as the Q & C Company, by advice of their counsel after investigation of the Thomson and Thomson rail joint patents owned by the Rail Joint Company, have recognized the utility and validity thereof, and have taken a license thereunder in order to utilize the Thomson and Thomson novel system of metal distribution, for head reinforcement, in connection with their Bonzano types of splice bars. Accordingly, notice is given by the Rail Joint Company that the aforesaid companies are authorized under the Thomson and Thomson patents in the manufacture and sale of the Bonzano type of splice bars having the Thomson and Thomson system of metal distribution for head reinforcement."

Charles Kirchoff, for 20 years ending in 1909, editor-in-chief of the Iron Age, died July 23 at his summer home, Wanamassa, near Asbury Park, N. J., at the age of 64 years. Mr. Kirchoff was born in San Francisco. He was educated in this country and in Germany, and graduated from the Royal School of Mines in Clausthal, Germany, in 1874. He then returned to this country and for a while was a chemist in the Delaware Lead Mills, at Philadelphia. He then joined the staff of the Metallurgical Review, but in 1878 became a member of the editorial staff of the Iron Age. In 1881, however, he became managing editor of the Engineering & Mining Journal, but returned to the Iron Age about four years later. He became editor-in-chief of the Iron Age in 1889 and retained that position until 1909, becoming in 1904 also business manager of the David Williams Company, the publishers. Mr. Kirchoff was at the time president of the American Institute of Mining Engineers.

United States Steel Corporation Declares Extra Dividend

The directors of the United States Steel Corporation at a meeting on Tuesday of this week declared the regular quarterly dividend of 1¾ per cent on the preferred stock, the regular quarterly dividend of 1¼ per cent on the common stock and an extra dividend of one per cent on the common stock.

The net earnings of the corporation for the second quarter reached the unexpected total of $81,126,048. This compares with $60,713,624, the previous high record reached in the first quarter of this year. Until that time the highest record for a quarter was in the second quarter of 1907 when earnings totaled $45,503,705.

The net earnings for the second quarter of 1916 were nearly $10,000,000 in excess of what they were in the entire four quarters of 1914. The net earnings of $141,839,672 for the first half of this year were larger than for any full year with the exception of 1906 and 1907 when the net earnings were $156,624,000 and $160,964,000 respectively.

Even after the payment of the extra one per cent dividend there remained a surplus for the quarter of $47,964,535. In the first quarter there was a final surplus of $32,854,172, making $80,818,707 added to the surplus in the first six months. The steel corporation will, however, spend about $70,000,000 for additions.

TRADE PUBLICATIONS

Pere Marquette.—This company has published an attractive 40-page booklet on Michigan summer resorts, containing maps and information as to rates and train service.

Oil Engines.—The National Transit Pump & Machine Company, Oil City, Pa., in Bulletin No. 502 describes the National Transit, 4-cycle Diesel oil engine, type DH4A.

Locomotive Driving Box Wedge.—Series E bulletin 600 recently issued by the Franklin Railway Supply Company deals with the Franklin Automatic adjustable driving box wedge.

Turret Lathes.—One of the recent publications of the International Machine Tool Company, Indianapolis, Ind., deals with the "Libby" heavy duty turret lathe in railroad shops. The booklet contains illustrations of the lathes, and gives operating records dealing with their work in railroad shops.

Railway Construction

Alabama & Mississippi.—Plans have been made by this company to start work at once on a line from Leakesville, Miss., to Laurel, about 60 miles, and the work is to be completed in about one year. This company recently finished work on a connecting link from Leakesville, south to the Pascagoula-Moss Point Northern at Evanston. (July 14, page 89.)

Chicago & North Western.—This company has applied to the Wisconsin Railroad Commission for a certificate of convenience and necessity for the extension of a spur from Kingston, Wis., 8.9 miles, into Oconto and Langlade counties.

Clarksdale Municipal Railway.—Preliminary surveys are being made to build a railroad to connect Clarksdale, Miss., with Webb and Trios Point. M. J. Bouildin, president and L. W. Mashburn, chief engineer, Clarksdale. (See Mississippi Roads, July 21, p. 133.)

Colorado, Kansas & Oklahoma.—This road contemplates the extension of its line south across western Kansas to Forgan, Okla.

Minkler Southern.—This company, a subsidiary of the Atchison, Topeka & Santa Fe, is building an extension from Lindsay, Cal., to Porterville, 12½ miles.

New York Subways.—The New York Public Service Commission, First district, will receive bids on August 10, for the installation of tracks on 15 sections of subway work, including that portion of the Broadway-Fourth avenue subway system between Fifty-ninth street and Seventh avenue, also the Canal street connection between Canal street and Broadway and the Manhattan approach of the Manhattan bridge, in the borough of Manhattan, and the Flatbush avenue extension at Prince street in the borough of Brooklyn.

The commission has awarded to the Degnon Contracting Company, New York City, for $9,600, the contract for certain construction work at the Manhattan terminal of the Brooklyn bridge as a preliminary to the construction of the Nassau street subway. The work to be done consists of the building of certain supports under the recently constructed connection between the Brooklyn bridge and the Centre street loop subway.

A contract has been awarded to Patrick McGovern & Co., the lowest bidder at $4,194.797, for the construction of the new two-track tube under the East river from Second avenue and Sixtieth street in the borough of Manhattan, to a connection with the new elevated lines in the borough of Queens, at Queensboro Bridge Plaza station. (July 21, p. 133.)

Northwestern Pacific.—This company is surveying a line from Cummiskey, Cal., to Marshall Summit, 20 miles.

North Texas & Santa Fe.—This company has applied for a charter to build a railroad from Shattuck, Ellis county, Okla., about 100 miles west through Libscomb, Ochiltree and Hansford counties, Texas. The company is a subsidiary of the Atchison, Topeka & Santa Fe.

Pascagoula-Moss Point Northern.—See Alabama & Mississippi.

Wheeling & Lake Erie.—This company is constructing a belt line 3½ miles long at Canton, Ohio, to reach the new furnaces of the United Furnace Company. This line will cross Tuscarawas street with a double track under-grade crossing, to be constructed of reinforced concrete and steel. J. C. Carland, Toledo, Ohio, has the contract for the work which is now practically 50 per cent. completed.

Wisconsin & Northern.—This company is extending its main line from Shawano, Wis., to Black Creek, 24 miles. The contract for the grading has been awarded to P. W. O'Connor & Co., Grand Rapids, Mich. The tracklaying and the erection of bridges will be done by company forces. About 10,000 cu. yd. of material is being handled per mile and about 300 cu. yd. of concrete will be placed in the construction of culverts. The maximum curvature is 2 deg. and the grade southbound 0.6 per cent. and northbound 0.8 per cent. Three pile trestles totaling about 300 ft. in length will be constructed.

RAILWAY STRUCTURES

BALTIMORE, MD.—The Pennsylvania Railroad is planning to start construction work soon on a concrete grain elevator at Canton. The new structure will replace elevator No. 3, which was destroyed by fire on June 13.

BOSTON, MASS.—The Public Service Commission of Massachusetts has authorized the construction of a new bridge over the tracks of the Boston & Albany at Brookline avenue, near Fenway Park. The improvements will be started as soon as the proportionate cost is determined. The city of Boston, the Boston & Albany and the Boston Elevated will each pay a part of the cost of the work.

CHICAGO, ILL.—Bids are now being asked on the superstructure of the Illinois Central office building at Sixty-third street, which will be nine stories in height. The building will cost about $500,000. Work is now under way on the substructure. (April 14, p. 865.)

HALIFAX, N. S.—Bids are wanted until August 7, it is said, by J. W. Pugsley, secretary of the Department of Railways and Canals, Ottawa, Ont., for the construction of Halifax ocean terminals passenger station.

KANSAS CITY, KAN.—The Kansas City Terminal will make terminal improvements at an approximate total cost of $4,000,000. The project includes the erection of two $100,000-passenger stations, two freight stations and a long double-track steel viaduct. About five miles of new track will be laid. The work will involve the use of 17,000 tons of steel and 40,000 cu. yd. of masonry.

NORTH MCGREGOR, IA.—The Chicago, Milwaukee & St. Paul has started the construction of extensive terminal facilities including a 22-stall roundhouse, a 90-ft. turntable, a 100,000-gal. water tank, a 154-ft. cinder pit, a sand house, a coaling station, a power house, 50 ft. by 63 ft., a blacksmith and machine shop, 40 ft. by 60 ft., a car repair building, 40 ft. by 80 ft., and an entirely new yard layout, involving 15 miles of track. The project also involves an extensive channel change of Giard creek and the raising of the yards above the flood level. Aside from part of the grading contract which has been awarded to Morris Shephard & Dougherty, St. Paul, Minn., all of the work is to be done by company forces.

OKLAHOMA CITY, OKLA.—The St. Louis & San Francisco contemplates the installation of a 10-stall roundhouse, a 100-ft. turntable, mechanical department buildings and yard tracks, to cost about $200,000.

PEORIA, ILL.—A contract has been awarded to the Widell Company, Mankato, Minn., for the construction of a reinforced concrete viaduct to carry Adams street over the tracks of the Chicago & North Western, the Chicago, Burlington & Quincy, and the Minneapolis & St. Louis. The structure will be approximately 1,100 ft. long between abutments, and will rest on 29 piers. A roadway 24½ ft. wide and sidewalks on either side, 5 ft. 8 in. in width, will be provided. An additional structure branching off the main viaduct, about 400 ft. long to its abutment, and providing for a 16 ft. roadway with no sidewalk, will also be built. The approximate cost of the structure has been estimated at $100,000, which will be shared by the city and the railroads.

SACRAMENTO AND OROVILLE, CAL.—The Northern Electric has awarded a contract to the Missouri Valley Bridge & Iron Company, Leavenworth, Kan., for the erection of a steel bridge over the American river at Sacramento, Cal., and a steel bridge over the Feather river, near Oroville, Cal. The American river bridge will consist of three 200-ft. through pin-connected spans resting upon four concrete piers on pneumatic caissons. The bridge company has the contract for the foundations and the erection of the superstructure, the steel having been purchased elsewhere by the railway. The contract at Oroville involves the erection of two through pin-connected spans, 150 ft. long, and one through plate girder span, 50 ft. long, on a foundation already in place.

TIFTON, GA.—A brick passenger station is to be built at Tifton for the joint use of the Atlantic Coast Line and the Georgia Southern & Florida. The proposed structure will cost about $25,000.

Railway Financial News

GEORGIA COAST & PIEDMONT.—Judge R. W. Walker, of the United States circuit court, has granted an appeal asking for the suspension of the receivership granted by Judge Emory Speer until the hearing of the appeal in October. The order directs a return of the property to the stockholders.

MISSOURI, KANSAS & TEXAS.—The receiver has been directed to pay the interest, which was due February 1 on the Kansas City & Pacific first mortgage 4 per cent bonds of 1990.

MISSOURI PACIFIC.—A modified plan for the readjustment of the Missouri Pacific and St. Louis, Iron Mountain & Southern securities and a reorganization of the company has been adopted by Kuhn, Loeb & Co., reorganization managers, and by the committees representing the stock, 5 per cent first and refunding mortgage bonds, the 50-year gold bonds and the 40-year 4 per cent gold loan bonds of 1905. The committee representing the trust, 5 per cent bonds, due 1917, and the first collateral mortgage 5 per cent bonds, due 1920; and the committee representing the Central Brand Railway first mortgage 4 per cent bonds, due 1919, have approved of the plan as now modified. The original plans were outlined in the *Railway Age Gazette* of July 9, page 82, and July 30, page 184. The principal changes from this plan are as follows: The holders of the trust 5 per cent bonds, due 1917, and first collateral mortgage 5 per cent bonds, due 1920, were originally offered in exchange for their bonds new first and refunding 5 per cent bonds, due not earlier than 1965, whereas under the modified plan the holders of the 1917 bonds are offered, par for par, new first and refunding mortgage bonds, maturing January 1, 1923; and holders of the 1920 bonds are offered first and refunding bonds, par for par, maturing 1926. The holders of Central Branch Railway first mortgage 4 per cent bonds were under the original plan to receive in exchange for their bonds 50 per cent in new preferred stock and 50 per cent in new general mortgage bonds; under the modified plan holders of these bonds are offered, par for par, new general mortgage 4 per cent bonds. Holders of the Central Branch-Union Pacific bonds, due 1948, originally offered 50 per cent in preferred stock and 50 per cent in new general mortgage 4 per cent bonds, are under the modified plan offered, par for par, new general mortgage 4 per cent bonds.

Holders of any of the above mentioned bonds may, if they so elect, exchange their securities under the provisions of the original plan instead of the modified plan.

NEW YORK CENTRAL RAILROAD.—See Pittsburgh & Lake Erie.

PITTSBURGH & LAKE ERIE.—The directors have declared an extra dividend of 20 per cent. They have also authorized the sale to stockholders at par of $6,000,000 new stock. The extra dividend will just pay for the stock which each stockholder is entitled to subscribe for. Regular dividends are 10 per cent annually. The New York Central Railroad will receive $3,000,000 of the new stock, or an increase of $300,000 annually in its "other income."

ST. LOUIS & SAN FRANCISCO.—This property was sold under foreclosure on July 19 to representatives of Speyer & Co. and J. & W. Seligman & Co., both of New York, who are acting as reorganization managers. The sales price was $45,700,200, or almost exactly the same as the upset price fixed by the court of $45,700,000.

TEXAS & PACIFIC.—This company has filed with the state railroad commission an application for the approval of the issue of equipment trust certificates to pay part of the cost of equipment, including 8 locomotives, 100 steel underframe 50-ton ballast cars, and 8 steel 70-ft. combination baggage and mail cars, the purchase price being $615,025.

SUBWAY WASTE PAPER.—Five tons of newspapers are daily thrown away in the New York City subways. If these were not cleaned away the trains would be blocked every few days.—*Merchants' Association Bulletin.*